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DR. MACLACHLAN'S CASE.

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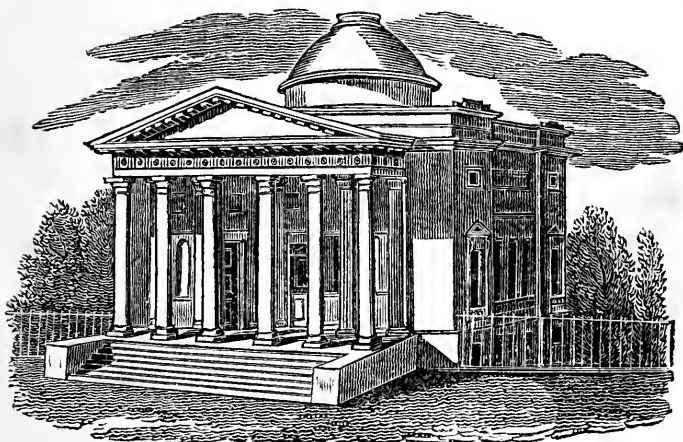
THE
GLASGOW
MEDICAL JOURNAL;

EDITED

BY WILLIAM MACKENZIE,

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GLASGOW EYE INFIRMARY, MEMBER OF THE ROYAL COLLEGE OF SURGEONS OF
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AND OF THE MEDICAL AND CHIRURGICAL SOCIETY OF LONDON, AND
CORRESPONDING MEMBER OF THE MEDICO-CHIRURGICAL
SOCIETY OF EDINBURGH.

VOLUME FIRST.



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Communications have been received from Drs. Brown, Andrew Buchanan, Sym, and Thomson; and Messrs. John Brown, Hunter, and Mackay.

We have taken the liberty of considerably abridging Dr. Macfarlane's Report, as it arrived too late to be included within our ordinary limits.

W. will please call at the Publishers' Shop, Glassford-street, where a packet is left for him.

The following Works have come to hand :—

A Sketch of the History, Composition, and Medicinal Properties of the Springs of Leamington Spa. By Charles Loudon, M.D. Leamington Spa, 1827. 8vo. pp. 38.

An Essay on the Use of Chlorurets of Oxide of Sodium and of Lime, as powerful disinfecting Agents. By Thomas Alcock. London, 1827. 8vo. pp. 152.

Examen des Principes de l'Administration en Matière Sanitaire. Par N. Chervin, M.D. Paris, 1827. 8vo. pp. 136.

A Medical Sketch of Dumfries-shire. By J. Erskine Gibson. Dumfries, 1827. 8vo. pp. 81.

Observations on the Mortality and Physical Management of Children. By John Robertson, One of the Surgeons to the Manchester Lying-in Hospital. London, 1827. 12mo. pp. 311.

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Various Communications have been received, which we must defer till our next Number. Our readers will observe, that we have again been obliged to add a sheet beyond our usual limits.

The following Books have come to hand :—

Botanical Chart : or, Concise Introduction to the Linnæan System of Botany. By James Rattray. New edition. Glasgow.

Physiological Illustrations of the Organ of Hearing, more particularly of the Secretion of Cerumen, and its effects in rendering Auditory Perception accurate and acute. By Thomas Buchanan, Surgeon to the Hull Dispensary for Diseases of the Eye and Ear. London, 1828. Royal 8vo. pp. 160. 10 plates.

A Memoir on some recent Discoveries relative to the Functions of the Nervous System. By F. Magendie. Translated from the French. London, 1828. 18mo. pp. 30.

Anatomical Description of the Human Eye. By Alexander Watson. Edin. 1828. 4to. pp. 16. 1 coloured plate.

Medico-Chirurgical Review, No. 17. April, 1828. [In exchange.]

Communications, and Books for Review or Announcement, may be addressed to the Editor, at the Publishers, Messrs. David Allan & Co. Ship Bank Buildings, Glasgow ; or in Edinburgh, London, Dublin, and Belfast, to the Agents named on the Cover.

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We have received various communications, all of which we have acknowledged by letter or otherwise, except one from Mr. James Wallace, which we shall endeavour to insert in our next number, and another from Mr. Cornelius Provan, containing a case of acephalous fœtus, the chief peculiarities of which appear to be the deficiency of the spinal canal, as well as of the cranium, and the existence of only one optic nerve.

In an answer to the queries of Mr. Phelim, regarding the increased mortality from measles, since the introduction of vaccination, as stated by the late Dr. Watt, we shall at present merely mention, that the increase is generally referred to two causes; 1st, the increased population; and, 2d, the number of children saved from small-pox, and of course exposed to perish from other diseases, and amongst these from measles. It has also been stated, that Dr. W. drew his conclusions from the number of deaths which occurred during years wherein measles were epidemic, and more than commonly fatal. We are not aware of any new documents being collected in illustration of this subject; upon which we shall probably enlarge at an early opportunity.

The following books have come to hand:—

Medico-Chirurgical Review, Fasciculus 3, 4, 5, 6, of No. 17. [In Exchange.]

A Treatise on the Cause and Cure of Hesitation of Speech, or Stammering. By Henry McCormac, M. D. London, 1828. Post 8vo. pp. 112.

Surgical Observations on the Treatment of Chronic Inflammation in Various Structures, particularly as exemplified in the Diseases of the Joints. By John Scott. London, 1828. 8vo. pp. 291.

A Medico-legal Essay on Infanticide. By Robert Arrowsmith, M. D. Edinburgh, 1828. 8vo. pp. 85.

Outlines of Lectures on Mental Diseases. By Alexander Morison, M. D. Second Edition. London, 1826. 8vo. pp. 150. 13 Plates.

Cases of Mental Disease, with Practical Observations on the Medical Treatment. For the Use of Students. By Alexander Morison, M. D. Edinburgh, 1828. 8vo. pp. 164. 2 Plates.

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ERRATUM.

Page 258, line 8, for "bluish," read "blush."

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We have received various complaints of the irregularity with which this Journal is delivered in the country. We beg to assure our friends, that the fault does not lie with the Glasgow Publishers, but entirely with the country booksellers, who either neglect sending their orders to Glasgow, Edinburgh, or London, at all, or send them to other agents than those named on the Cover. So far from our 3d Number being a month later in being published than the regular day, we can assure our country friends that each of the Numbers has been despatched from Glasgow on the night previous to the regular day of publication.

The following Books have come to hand:—

On Difficult Cases of Parturition; and the Use of Ergot of Rye. By W. Michell. London, 1828. 8vo. pp. 128.

American Journal of the Medical Sciences. No. III. May 1828. [In exchange.]

A Clinical Lecture delivered to the Students of Surgery in the Royal Infirmary of Edinburgh, at the conclusion of the Summer Course for 1828. By George Ballingall, M.D. 4to. pp. 31.

Medico-Chirurgical Review. Six Fasciculi for July, August, and September. [In exchange.]

Observations on the Nature and Treatment of Erysipelas, illustrated by Cases. By W. Lawrence. From the 14th volume of the Medico-Chirurgical Transactions. London, 1828. 8vo. pp. 205.

Medical Essays on Fever, Inflammation, Rheumatism, Diseases of the Heart, &c. By Joseph Brown, M.D. London, 1828. 8vo. pp. 309.

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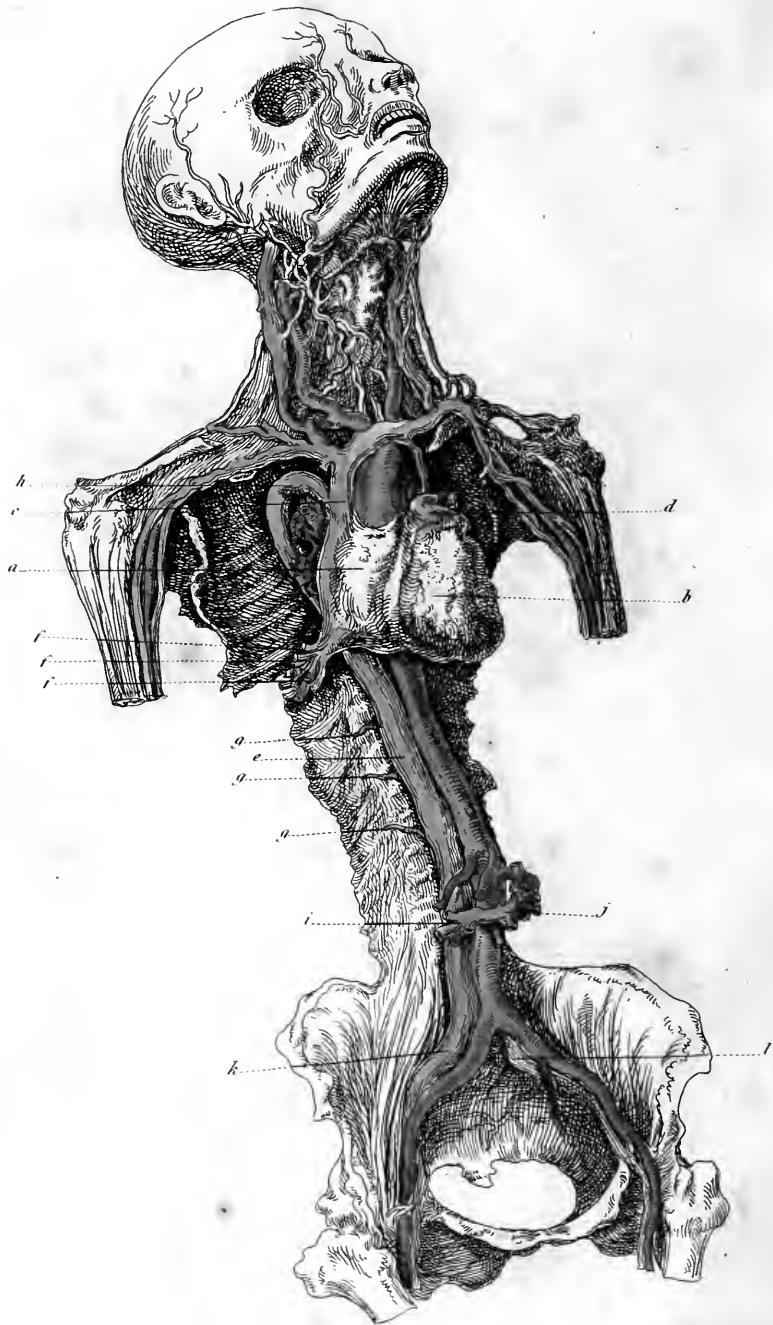
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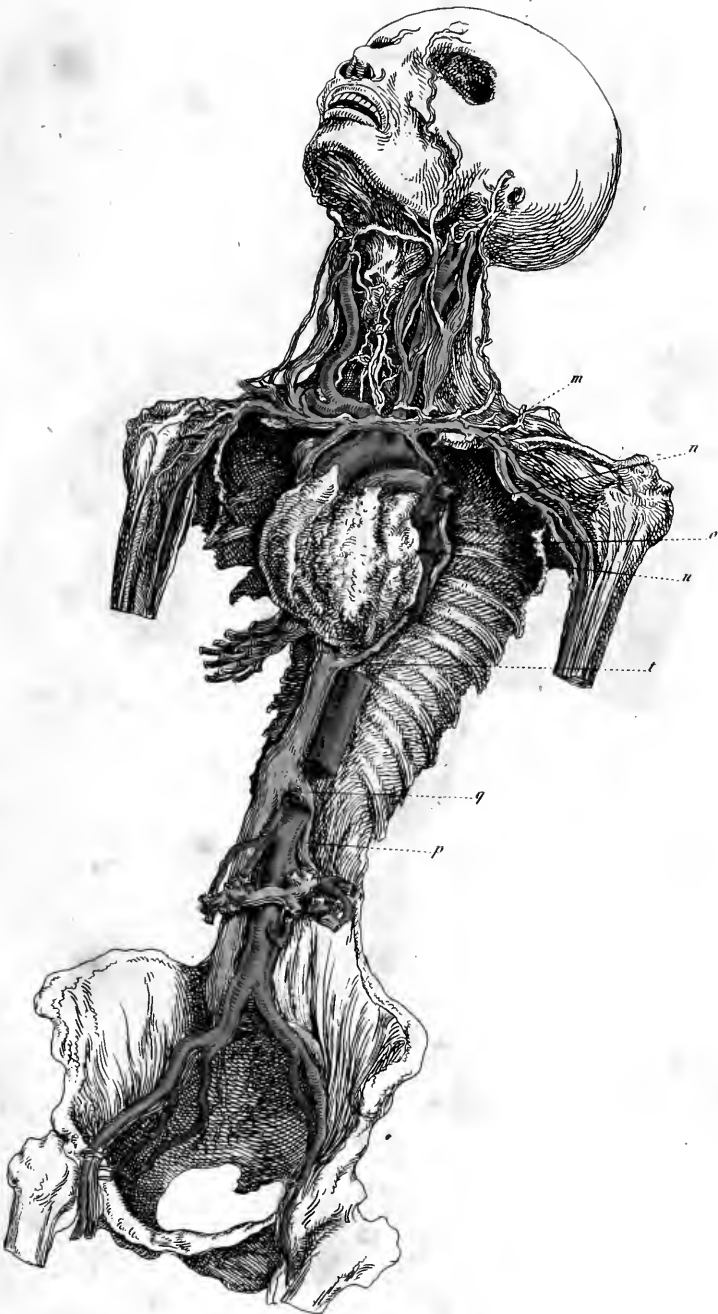
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DR. JEFFRAY'S CASE OF
THE VENOUS SYSTEM.



SINGULAR DISTRIBUTION OF

Drawn & Etched from the Preparation by W. Warren Glasgow.

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I. *Account of a Singular Distribution of the Venous System.* By
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of Glasgow.

[With two Engravings.]

THE preparation, from which the annexed representations have been taken, came under notice, I may say, by accident. The subject was a female, about 30 years of age, in every respect well formed, and, though emaciated, full grown; but in such a putrid state, that we hesitated about doing any thing with it. Having been, however, more than once agreeably surprised by a lucky injection, in subjects far gone in putrefaction, it was injected, in the hope that the trunks at least of the vessels would be filled. The injection ran freely, till the large vessels had become turgid; when the right auricle (Plate 1st, *a*) gave way, and part of the injection returning from the ventricle (*b*) and the vena cava superior (*c*), these parts, together with the pulmonary artery (*d*), remained less in size than they were before the auricle burst, while the auricle itself remained shrunk to less than half its previous size.

When the parts came to be examined, after the injection had become cool and hardened, we were not a little surprised, as we traced the vena cava inferior (*e*) upwards towards the heart, to find that instead of advancing a little forwards and to the left, to receive the hepatic veins (*fff*), and then to rise up through the diaphragm, and immediately thereafter to enter the lower end of the right auricle (*a*), it turned backwards and to the right, away from the heart altogether, leaving the hepatic veins (*fff*) to coalesce by themselves and enter the auricle without communicating with the inferior cava.

On following the cava inferior upwards, we were still more surprised to find that there was no vena azygos, but that the inferior cava had not only taken the place of the azygos, but had assumed its functions, receiving the intercostal veins (*ggg*) in its way up to the third rib, where (at *h*) it turned like the

azygos, suddenly forward and to the left, and curving downwards, penetrated through the pericardium, as the azygos does, and at last, like the azygos, entered the superior cava, about an inch and a quarter above where the superior cava enters the heart.

On tracing the cava inferior downwards, we found it receiving (*i*) the right emulgent, and (*j*) the left; and in front of the fourth lumbar vertebra, it was formed in the usual way, by the union of the two common iliacs (*k*, *l*). Below this point nothing uncommon could be observed, either in artery or vein.

Plate 2d shows the parts as seen from the left, bringing into view (*m*) the left branch of the pulmonary artery, together with (*n n*) the pulmonary veins of the left lung, hiding in a great measure the aorta. To the left of the aorta, and nearly in the situation where a left azygos would be expected to be, is a large vein (*o*) which at first was taken for an auxiliary azygos; the more so as a vein (*p*) of nearly the same size was observed proceeding upwards from the left emulgent, close by the aorta, with which vein (*p*), it was conjectured, that the upper vein (*o*) had been continuous. But on examining the vein *p*, it became evident, from the knobs upon it, that it had been receiving blood from other parts than the emulgent, and that instead of continuing its course to join the vein *o*, it turned in behind the aorta, nearly opposite to the last rib, slanting upwards and to the right, towards the vena cava inferior (at *q*), while the superior vein (*o*) curved downwards, and to the right, (*t*), behind the aorta, nearly on a line with the seventh rib.

These things being considered, (and some of them had not been attended to till the preparation had been dried, and for years set aside), it became suspected that, in this subject, the vena cava inferior, by receiving the lumbar and intercostal veins (*ggg*) on the right side, had manifested the character of an azygos there, and that it had acted in the same manner on the left side, even as low down as the emulgent, by receiving from that vein, the large vein *p*, which, from the knobs projecting out from it, especially upwards, showed that while it had brought renal blood to the cava, directly from the left emulgent, it had gathered blood from the parts in its vicinity also, which blood its valves allowed to pass on to the cava, but prevented all return. It now also became suspected that the vein *o* did not carry blood to the inferior cava, but, as its upper extremity terminated in the left subclavian, that it was an offset from the inferior cava; and that as the cava now acted not only as cava, but as azygos in chief, this vein might not only have relieved the cava, by receiving from it and

carrying on a part of the blood which the cava would otherwise have been obliged to convey to the heart, but might have finished on the left side, as an azygos, what the lower vein (*p*) as an azygos had begun.

To determine these points, it was resolved to make free with the preparation, and to remove a portion of the aorta that covered what was conjectured to be the termination of the vein *p*, and another portion that obscured the beginning of the vein *o*; when our suspicions were confirmed; for the vein *p* was now seen distinctly to be a large branch rising upwards from the left emulgent, and entering obliquely into the cava inferior, as high up as the cœliac artery; and the vein *o* was as distinctly seen to be a branch nearly as large, sent off, nearly opposite the head of the 7th rib, by the inferior cava, which, like a river, had here split into two streams, leaving a deltoid space between. It had also been observed, that the cava inferior became suddenly enlarged at *q*. The cause was now evident. At that point, the blood of the large vein *p* had been poured in.

The chief peculiarities in this case seem to be—That the vena cava, in passing up behind the liver, avoided all connexion with the hepatic veins—That there was, strictly speaking, no vena azygos either on the right side or the left—That the cava inferior, when it came up to the heart, divided into two unequal branches, the larger turning to the right, and the smaller to the left, but both avoiding the heart—That the branch on the right side, which may be called the cava inferior dextra, followed the course of the vena azygos, and ended as if it had been the azygos, in the cava superior, while the other, which may be called the cava inferior sinistra, ended in the left subclavian vein—That the dextra, while it continued to do its duty as cava, assumed the office of azygos also, by receiving the parietal veins, as soon as it passed the right emulgent vein—That the sinistra, having come off from the dextra, in the thorax, could not only act as an auxiliary cava, in the left side of the thorax, but could also do the duty of an azygos there; but while in this way the duties of azygos would be performed to the whole of the right side and the upper part of the left, the lower part of the left would have been neglected; to guard against which, the left emulgent sends up the large vein *p*, which, while it conveyed to the cava inferior a part of the renal blood, must have also done the duty of an azygos to the parts in its vicinity, as into it the lumbar veins are seen entering—Lastly, That all the blood, with the exception of that from the hepatic and coronary veins, must, in this case, have been poured into

the right auricle from above downwards, in one full and undivided stream.

I do not choose to hazard any opinion, or draw any conclusion, at present, from this very singular distribution of the venous system; but may state, that impressed with the belief that there must have been some accidental, some mechanical cause, which had prevented the blood from getting on to the heart, in the usual way, great care was taken to search diligently and cautiously for any appearance of tumour, compressed vessel, or remaining ligament, but none was found.

College, Dec. 11, 1827.

II. *Anatomico-Chirurgical Remarks on the different Portions of the Axillary Artery, with a Case in which this Vessel was successfully tied.* By G. C. MONTEATH, M.D. One of the Surgeons of the Glasgow Eye Infirmary, lately a Senior Surgeon of the Glasgow Royal Infirmary, &c.

THE cases of ligature of the axillary artery at present recorded, are few and far between, and the successful ones less numerous than those of the carotid, subclavian, or external iliac arteries. I have therefore thought it proper to communicate a case, in which it was deemed necessary to secure this artery, deep in the axilla; in consequence of an injury of the brachial artery, followed by dangerous hæmorrhage, and by extensive mortification of the skin, and of the subcutaneous and intermuscular cellular substance of the arm and forearm, extending to the very border of the axilla. Previously to entering on this case it will be useful to examine the Surgical Anatomy of the Axilla, and to take a brief review of the cases already recorded, in which the axillary artery has been tied.

The axillary artery, surgically considered, may be divided, as has been done by Harrison and Velpeau, into three parts. The first lies at the top of the axilla, close upon the first intercostal space and the second rib, in the space between the lower margin of the clavicle and upper margin of the pectoralis minor, and is a little more in the adult of medium size, than an inch in length. The second, or middle portion, which is the continuation of the artery, and also about an inch in length, commencing with the upper edge of the pectoralis minor, and terminating at its lower edge, lies under, and is as if concealed by this muscle. The third, or lowest portion, extends from the lower edge of the pectoralis minor to the border of the axilla, this border being formed,

as all know, by the insertions of the pectoralis major, and of the latissimus dorsi, with its auxiliary, the teres major, into the os humeri. This third portion is longer than the united lengths of the first and second. The first and third portions have been tied with success; it is very uncertain whether the second has or ought to be attempted.

1st Portion of the Axillary Artery.—It is covered by the common integuments, the clavicular portion of the pectoralis major, the thin aponeurosis coraco-clavicularis, or fascia subclavicularis, which extends from the coracoid process to the clavicle and cartilage of the first rib, and lastly, by loose cellular substance. It is also in some degree hid and overlapped by the axillary vein, which is here as thick as the clavicle, and lies upon the sternal and anterior aspects of the artery. The axillary plexus of nerves lies on the acromial and posterior aspects of the artery. The connexion of the artery with the vein is pretty close, and there are two or three arterial branches given off by this portion, namely, the thoracica humeralis in one or in two divisions, and the thoracica anterior. The anterior thoracic nerve, a branch from the axillary plexus, accompanies these arteries out of the axilla, and the acromial and cephalic veins enter the axilla and axillary vein, in this limited portion of the axilla, and ought to be avoided in any operation. Though the artery itself does not lie deep, and is easily exposed and secured in the dead body, yet its relations with the important parts just mentioned, must render the application of a ligature upon it an operation of some difficulty and nicety, in the living. When the case will admit of it, the ligature should be applied as near to the clavicle as possible, so as to be above the origin of the two thoracic arteries already mentioned; as we know, that when a branch is given off immediately above the ligature, it may prevent the wished for obliteration of the artery, and give rise to fatal secondary hæmorrhage. There is fully an inch of the subclavian artery above this highest point or apex of the axilla, which gives off no arterial branches; where, indeed, the ligature is generally applied, when the artery is cut down upon above the clavicle; and in this point of view, the very top of the axilla (I mean immediately below the clavicle), is the best part of the whole course of the subclavian and axillary arteries, which can be selected for the application of a ligature. The only way in which this first portion of the artery can be exposed and tied, is through the anterior wall of the axilla. I should think it best, in the first place, to divide the common integuments in an oblique direction, commencing immediately below the

clavicle, an inch, or in thin people two inches, from its sternal articulation, and terminating near the point of the coracoid process, where the deltoid and pectoral come in juxtaposition, and where the cephalic vein must be avoided. The fibres of the clavicular portion of the pectoralis major muscle must be next divided to the same extent, either with or without the assistance of a director, as the surgeon may prefer. I may here state that it has been proposed to expose and tie this part of the artery, by merely separating the clavicular portion of the pectoralis major from the clavicular portion of the deltoid, where they are united by cellular substance, and form a natural gutter, called by the French the coraco-deltoid fissure, which conducts the cephalic vein to the axilla, and lies nearly over the course of the artery. But independently of being encumbered with the cephalic vein, it must be next to impossible to operate with any safety or certainty, in such a circumscribed space. It may also be mentioned, that the mere separation from each other, without division, of the muscular fibres of the pectoralis, by an incision in the course of the fibres, as recommended by Professor Marjolin in the *Dictionnaire de Médecine*, article *Anévrysme*, must leave the operator much confined and embarrassed in the ulterior steps of the operation. Muscular fibres should, therefore, to a greater or less extent, be divided so as freely to expose the space between the clavicle and the upper edge of the pectoralis minor. The fascia subclavicularis must next be cautiously divided, also the loose subjacent cellular substance, and the artery will then be found situated in relation to the axillary vein and nerves as above described. When the artery has been cautiously separated in the same manner as any other, the aneurismal needle should be entered between the vein and artery, and brought out at the acromial side.

The cases in which it may be proper to tie this portion of the artery are those of small circumscribed aneurisms in the middle and lower portions of the artery, or a high aneurism of the brachial artery, rising into the axilla. The operation may be also advisable in cases of recent wound of the middle or lower portions, or where there has been a consequent diffused aneurism, provided it be deemed impossible to cut down directly on the wounded part of the vessel, of which hereafter. Experience alone must determine whether, even in the cases I have mentioned, it may not generally be preferable to secure the artery above the clavicle, rather than below it; but that the latter operation may be safely done in cases of aneurism of the axillary artery and a cure effected by it, has been proved by at least two cases.

Mr. Keate, surgeon-general of the English army, tied this portion of the artery in 1800, on account of an aneurism in the lower part of the axilla, which had actually burst. After dividing the skin and part of the clavicular portion of the pectoralis major, but before isolating the artery from the vein and nerves, he passed a curved blunt-pointed needle, armed double, under the artery, as he conceived, and tied two of the ends. After a careful examination, finding that the artery still pulsated below the ligature, he determined on passing another ligature higher up, near to the clavicle, and so deep as evidently to include the artery, and the patient recovered.

Mr. Chamberlaine, of Kingston in Jamaica, was, I believe, the first who secured this portion of the artery, in a surgeon-like manner, and with perfect success. The operation was performed in the manner I have recommended above. The case occurred in 1815, in a healthy-looking negro man, about 25 years of age, who had a circumscribed aneurism of the lower portion of the axillary artery, the size of a large orange, occasioned by a wound with the point of a cutlass. Every thing went on favourably after the operation, and the arm was saved.

Pelletan, in the 2d vol. of his *Clinique Chirurgicale*, relates a most interesting case of circumscribed aneurism, about half way up the axilla, in a man 40 years of age, produced by a violent effort, and which had existed two years, when he applied at the Hôtel Dieu for relief. Though the tumour raised the shoulder by its bulk, yet, to use Pelletan's own words, there was *un espace notable entre elle et la clavicule*, where the artery could be felt, and might have been easily tied. Though this case occurred so far back as 1786, Pelletan, much to his credit, proposed to his colleagues the very operation recommended at the present day, and performed so successfully by Chamberlaine; and I believe Pelletan would have been the first to have tied that part of the vessel successfully, had he not been thwarted and prevented by his colleagues. After he had divided the common integuments in the same way as Chamberlaine, they would not allow him to proceed, as he had planned, with the division of the clavicular portion of the pectoralis, but caused him to thrust a sharp needle repeatedly, *à différentes reprises*, behind the artery, so as if possible to pass a ligature around it. He failed, and renounced the operation, thankful that in these dangerous, unsurgical, and ill-advised attempts, he had not transfixed the artery or vein. The patient died in 20 days after this attempt, of inflammation of the chest, produced by

the aneurismal tumour eroding the ribs, and exciting inflammation of the pleura. Dissection proved that the operation could have been easily performed in the scientific manner Pelletan had proposed. The artery lay even more superficial than usual, and was hardly overlapped by the large axillary vein, in consequence of the tumour having pressed the artery nearer to the surface than natural.

Lastly, Desault, in the last years of his practice, seems to have attempted securing this portion of the artery, on account of an aneurism in the upper part of the axilla; but the patient died of hæmorrhage, among his hands, on the table. This case is alluded to (not described) by Bichat and others, so that little can be inferred from it. We know that Desault attempted to cure this case by the now exploded operation of opening the sac. He performed the same operation on an aneurism of the lower portion, of which hereafter.

2d or Middle Portion of the Axillary Artery.—It is in people of full size, fully an inch in length, and is closely protected and concealed as it were by the pectoralis minor, which crosses it. This portion is covered by both pectoral muscles, whereas the upper and lower portions are covered by the pectoralis major only. The axillary vein here, as in the upper portion, lies on the sternal and anterior aspect of the artery, but does not lie in such close contact with it as above, because the axillary nerves, in place of lying all on the humeral side of the vessel, here form a plexus, embracing and surrounding the artery with a nearly perfect sheath of nerves, which is thus interposed between the artery and vein. This arrangement of the large nerves of the axilla around the artery, is splendidly and lucidly set forth by Scarpa, in his third and fourth admirable plates of the nerves. These connexions of the artery, as well as its depth, either from the base or front of the axilla, render, I conceive, any operation on this part of the vessel almost out of the question, even though Desault's expedient, and Roux's recommendation, of cutting across as much as might be required of the pectoralis major, so as to open up and expose the axilla to view, were resorted to. If this part of the artery were wounded, I would confidently anticipate a favourable result were the upper portion of the artery tied, and also the lower portion, if the nature of the case seemed to demand it, rather than perform the dreadful operation of ripping up the axilla, and attempting to secure the vessel where it is almost inseparably incased in large and important nerves.

3d Portion of the Axillary Artery.—This division commences at the inferior border of the pectoralis minor, and

extends to the base, or lower opening of the axilla. Its length is equal to the united lengths of the two former. The artery now approaches to, and lies pretty close upon the head, neck, and commencement of the os humeri, against which it can be compressed, and the circulation of the arm suppressed during a high amputation, where the tourniquet could not be used. I have repeatedly, in the capacity both of operator and assistant, put this to the proof on the living body, and think it is much more to be depended on than pressure of the artery either against the 1st rib above the clavicle, or the 2d rib below it. The vessel is here protected in front by the lower part of the pectoralis major. Below, the entrance to the cavity of the axilla is covered merely by the common integuments, and a thin fascia, by dividing which in a line parallel to and over the course of the artery, the whole of this 3d portion may be exposed, and a ligature passed around any part of it. The relation of the axillary vein to the artery is here much the same as in the two upper portions. It lies on its internal and sternal aspect. The nerves now no longer form a sheath or plexus around the artery, but having divided into the distinct nerves of the arm and forearm, they course along the different sides of the artery, nearly surrounding it, but so loosely as to render it perfectly practicable to isolate the vessel, and pass a ligature around it. This portion gives off at least four considerable arteries, viz. the thoracica longior, the great and important subscapularis, and the two circumflexæ, all of which are extremely uncertain in regard to the exact site, and mode of their origin, and yet must, if possible, be avoided in any operation on the trunk of the artery.

The artery has been here repeatedly tied with success. This may be necessary when it has been recently wounded; or at the very commencement of a diffused aneurism from wound or rupture, also in cases of aneurism high in the arm. There may be also cases of severe laceration, contusion, or tumour, high in the arm, which may require the ligature of the axillary artery. Mr. Samuel Cooper, in his invaluable Surgical Dictionary, states that this artery was tied about a century ago, by a Mr. Hall of Cheshire, where it had been wounded by a scythe. On referring, however, to the first mention I find of this case, in the 4th vol. of the London Medical Journal for 1784, p. 169, I find that the wound was not of the axillary, but of the humeral artery, just below the axilla. As the wound was free and large, the artery was laid hold of with the finger and thumb, and a ligature tied around it, at the wounded spot, and not in the axilla. The patient recovered.

Mr. White of Manchester, (see the same vol. p. 159), seems

to have been the first who tied this portion of the artery. The case (that of Capt. M. aged 23), occurred in 1783, and was caused by a sword, which wounded the artery just below where it gives off the anterior circumflex artery. A prodigious effusion of blood ensued, soon ending in syncope, and the patient appeared to many persons, both of the faculty and others, to be dead. Mr. White enlarged the wound, both upwards and downwards, and attempted to pass a crooked needle under the artery, but failed. A needle was then passed on each side of the wounded artery, through the integuments, bringing both ends of the ligature through the skin, at some distance above the wound, enclosing a good deal of substance, which, when tied, effectually secured the vessel. I need hardly say, that no surgeon of the present day, would be excused were he to conduct himself thus. The fact is, that three of the large nerves were included with the artery, under the ligature. Mortification commenced on the 4th morning, and he died in the evening of the same day. This was, no doubt, an unfavourable case, because, on dissection, one of the brachial nerves was found to have been divided, and the vein to have been wounded by the sword, but the depriving the limb almost totally of nervous energy, by including the nerves, must have been a complete barrier to success.

In the year 1795, the celebrated Desault tied this portion of the artery, almost as high as its commencement, so far as we can judge from the case, as narrated by Bichat. A sword had entered the axilla, about an inch above the edge of the pectoralis major. A great quantity of blood was lost at the moment, and a large diffused aneurism immediately formed under the pectoralis muscle, the latissimus dorsi, and the walls of the chest and belly. The patient, a man of 30 years of age, came under Desault's care, in the Hôtel Dieu, the 7th day after the accident, and seems to have been operated on, the same or next day. The skin over the tumour had by this time become red and tense, the forearm cold, and there was much attendant pain and fever. An incision, six inches long, was made along the course of the axillary artery, commencing under the clavicle. The two lower thirds of the pectoralis major were fairly divided, the aneurismal swelling exposed, opened, and emptied of blood, the axillary plexus of nerves, the vein, and the artery were then seized *en masse*, and a temporary ligature tied around the whole, so as to command the frightful bleeding. This ligature acted as a temporary tourniquet, till the artery was detached, and examined; when the wound was discovered immediately above the origin of the two circumflex, and the

subscapularis arteries. Here a ligature was applied upon the isolated vessel. The nerves and vein having been next liberated from the gripe of the ligature, first applied, it was also retained as one of reserve. Two more ligatures were applied below the wound of the artery, as is the present custom in most cases of large wounded arteries. During the first days, hopes were entertained of a cure; but on the 6th, the arm began to mortify, and the patient died. The tense and inflammatory state of the parts before the operation, as well as the extent of effused blood, rendered this an unfavourable case; but Scarpa, and the best surgeons of the day, censure highly the temporary ligature of the nerves, as it may have been sufficient to have destroyed their functions permanently, though the stricture upon them was very temporary.

Scarpa relates a case of wound of this portion of the artery, which must have been near its commencement, as it was high in the axilla, and close to the head of the humerus. The wound was inflicted by a sabre. MM. Maunoir, two celebrated surgeons of Geneva, secured the artery successfully, and without the auxiliary step of cutting across the pectoralis major. One of the Maunoirs introduced his finger into the bottom of the sabre wound, which was behind, and ascertained exactly where the vessel was wounded. The other made an incision through the integuments of the axilla, in the course of the axillary artery, divided the tumour, and removed the grumous blood, which did not prevent him from distinguishing the nervous cords of the brachial plexus, and the vein from the artery, which was tied above and below the wound. The artery was then cut across. (See Scarpa, by Wishart, 2d ed. p. 412). The operator was, in this case, easily guided to the exact spot where the artery was wounded, by the finger of the assistant passed into the sabre wound, an example worthy of imitation in all cases of wounded artery, which will admit of such practice. If the wounding instrument has been small, a large bougie or probe will answer the purpose better than the finger. This boy recovered the use of his arm, with the exception of the first phalanges of the last three fingers, which were destroyed by dry gangrene.

Professor Langenbeck of Gottingen, who is surely one of the most able surgeons of the present day, states that he also has successfully tied this portion of the artery. (See his *Bibliothek für die Chirurgie*, &c. vol. iii. p. 274.) In this case, the wound of the artery was so high, that he was obliged to cut across a portion of the pectoralis major. I may here mention, that Roux also recommends this step, and even the division of the pectoralis minor, were it found necessary.

(See his *Nouveaux Elémens de Médecine Operatoire*, tome I. p 770). But this is a step, if possible, always to be avoided, as the power of the arm must thereby be much weakened for life.

It is certainly one of the approved principles of surgery, that in wounds of large arteries, it is necessary to expose the wounded part of the vessel, and tie it *above* and *below* the opening, so as to prevent hæmorrhage from the *lower* part of the vessel, as well as from the *upper*; and that this is practicable in the lower portion of the axillary artery, the successful cases of Maunoir and Langenbeck have proved; and it seems to me to be the practice demanded in such cases, unless a diffused aneurism of some duration or of considerable magnitude had already formed, filling up and extending perhaps to the very summit of the axilla. This will unfortunately be too often the case in such wounds, for the contents of the axilla are so loose, as to give little resistance to the furious impulse of blood from a large wounded artery. How different are circumstances here and at the bend of the arm, where the brachial artery lies near to a flat surface of bone, and is closely bound down by fascia! In many cases, when the brachial is wounded, the progress of the succeeding aneurism is slow, and may be commanded in a considerable degree, and even in some rare cases cured, by bandaging and rest. Not so in the axilla; where a diffused aneurism, such as I have described in one of Desault's cases, must, in the great majority of instances, rapidly form, unless surgical aid be procured immediately after the accident. In such cases, the general surgical principle of tying the artery immediately above and below the wound, must, I fear, be laid aside, on account of the great difficulties and dangers, both immediate and consecutive, which must be encountered. In the cases of aneurism at the bend of the arm, from wound, the Hunterian operation is almost always successful, and though aneurism from wound of the axillary will generally be more diffused than at the bend of the arm, and therefore not so well suited for cure by the Hunterian operation, I would nevertheless consider that my patient had a much better chance of being saved, by this operation performed immediately above or below the clavicle, than by the operation performed by Desault, even though no injury were done to the nerves. On the other hand, however, where the surgeon is immediately called, and before extensive effusion of blood has taken place, the artery should be secured as I have related above, in the cases of Maunoir and Langenbeck.

In cases of true aneurism of the axillary artery, or even of

false aneurisms from a small puncture, exertion, &c., provided they be circumscribed, I need hardly say that the Hunterian operation alone would be proper. It may be performed immediately below the clavicle, if the tumour be small, and far down in the axilla; and immediately above it, if the tumour be large and reach to the top of that cavity.

The case which I shall now add to those in which the axillary was successfully tied, was one in which there was no wound, aneurism, nor effused blood in the axilla, yet it has appeared to me interesting, not only because it adds one to the number of successful ligatures of the axillary artery, but also furnishes a very striking instance of the restorative powers of nature, under the most unfavourable circumstances.

On the 20th of September, 1823, I was called to see Mr. M. about 20 years of age, residing nine miles from Glasgow. Twenty days before this, his right arm was run over by the wheel of a heavy coach, so as to have bruised it from near the shoulder to the wrist, but without any laceration of the skin. The wheel had crossed the arm about half way up the biceps muscle. Violent pain, swelling, and discolouration soon followed, and increased, notwithstanding the repeated application of leeches and fomentations. Mr. Craig, of Nielston, and Mr. M'Nichol, surgeon in Mearns, attended the patient.

On the 12th day, the swelling along the biceps was alarming, accompanied with high fever, the pulse being 130, and the pain severe. For some days previous to this, Mr. C. could discover no pulse in the radial artery. A free incision was made by Mr. C. over the course of the biceps, which gave vent to a large quantity of bloody pus, and putrid coagula. Suppuration and sloughing of the subcutaneous cellular substance extended down to the very wrist, forming here and there apertures in the skin. A small pulse could now be felt in the radial artery. On the 20th day, the appearance of the arm was truly repulsive. Almost all the integuments and cellular substance on the inner and under sides of the arm and forearm had sloughed, leaving the muscles as if they had been dissected. In some places the periosteum of the humerus was exposed, and the median nerve was visible at the elbow. The veins at the bend of the arm were exposed and dead, and the biceps tendon quite bare. Portions of sloughy matter hung out in all directions, and several of them were this day cut away. The same evening, about bedtime, a sudden hæmorrhage, ending in syncope, took place from the arm, just where the wheel had crossed it. Mr. C. speedily arrived with a tourniquet, but the bleeding had ceased.

Next day, the hæmorrhage recurred, and as it was evident that the humeral artery had given way, and that the patient was in the most critical state, Mr. Tait, surgeon in Paisley, and I were sent for. We found the arm as above described, the patient much exhausted by hæmorrhage, fever, mortification, and pain. The heat of the extremity was natural, and the radial pulse was perceptible, but very small. When Mr. C. saw this case some days after the accident, no pulse (as has been already mentioned) could be felt at the wrist, but it could be discovered some days after, though very feeble, and different from that in the other wrist. It was therefore concluded, that the wheel in passing across the artery had so bruised, or torn it, as to destroy its permeability at this point. It was also inferred from the return of pulse, that a new collateral circulation had been established. It was clear that the humeral artery had sloughed across where it had been bruised, and was the cause of hæmorrhage; yet that the collateral circulation was still carried on, and the pulse perceptible, because the arteries supporting this new circulation were all given off above the point which had sloughed, viz. the descending arteries from the subclavian, the thoracics, the subscapularis, the circumflexæ, and the profunda superior, or collateralis magna.

The gangrene had extended close to the boundaries of the axilla. The consideration of the case therefore resolved itself into two queries; *1st*, Amputation at the shoulder joint, or at the border of the axilla, procuring a flap from the outside of the arm; or *2d*, Tying the axillary artery, and leaving the arm to be saved if possible. The last would give the patient a chance of saving his limb, for renewal of dangerous hæmorrhage would be prevented, and the power of the collateral circulation, already pretty well established, might not be too much diminished by the loss of the profunda, of the circumflexæ, and of the subscapularis, above all which the ligature must be applied, on account of the gangrenous state of the soft parts, between the slough of the artery and the axilla. In the event of the collateral circulation proving insufficient, and the gangrene proceeding, amputation might still be resorted to. It was therefore agreed to tie the axillary artery, which I proceeded to do at seven in the evening, with the assistance of the three above-named gentlemen.

Operation.—The patient was laid on a table, with his right side near its edge, and the arm supported by an assistant, at a right angle with the body. The subclavian was to be pressed against the first rib, by means of the padded handle of a tourniquet, in case of hæmorrhage. I made an incision $3\frac{1}{2}$

inches long, extending along the course of the artery, from as high in the axilla as the integuments would permit, to within half an inch of the sloughing parts of the arm, that is, to the border of the axilla. After cutting the skin and cellular substance about half an inch deep, I performed the dissection chiefly with the handle of the knife and my fore-finger nail, assisted occasionally by tearing a few fibres of membrane with dissecting forceps. Two large nerves first presented, and behind the one nearest the humerus, lay the artery. By cutting the cellular sheath of the nerve with the scalpel, I easily exposed the artery. A very large vein lay on its humeral aspect, not on the sternal where I expected to find it. In this instance, which sometimes happens, the venæ comites which in the arm lie on each side of the artery did not unite till high in the axilla. I made a separation, or small opening between the vein and the artery, with the point of the forceps, by tearing the cellular substance. I now entered the armed aneurism needle, easily, between the vein and the artery, pushed it around, and by a few scratches of the nail brought it through on the opposite side. A single ligature was applied at least two inches above the tendon of the latissimus dorsi, and the wound brought together by adhesive plaster. About two table spoonfuls of blood were lost from a vein, at the lower angle of the wound. The sloughy parts of the arm and forearm were more freely incised, and a turpentine dressing, which had been in use, continued. Opium and wine had been given for several days, and were also directed to be continued. Whilst performing this operation, I stood behind the arm, and operated over it. I found the position very convenient, and the light of candles perfectly sufficient. It was evident, that by this operation, the collateral supply of blood sent direct from the humeral and axillary, by the profunda superior, circumflexæ, and subscapularis, was at once cut off, which might be expected to effect the circulation in the limb, which was accordingly instantly observed. The arm grew paler and cooler, the hand became cold, and continued for two or three days to be warmed solely by the heat of the body, and the pulse at the wrist could not be felt; but in half an hour, both Mr. Tait and I were sure we could perceive a return of very slight pulsations.

The patient improved daily, though very slowly, the ligature came away on the 18th day, and the wound, made by the scalpel, healed in six weeks. What follows of this case, is chiefly extracted from the gentleman's own history of the after treatment, and progress of cure. The arm from the shoulder to the wrist was still in a piteous state, being one

continued sore, $2\frac{1}{2}$ inches at its narrowest, and not less than $4\frac{1}{2}$ at the broadest places. It was covered with large flabby granulations, which were as soft as curd. The wound improved very little for nearly five months, and when he attempted to sit up a little, or used the smallest exertion, a considerable bleeding, over its whole extent, was the invariable consequence. From this time, a very gradual amendment of the sore went on, under a variety of treatment; but it was not cicatrized till 15 months after the operation. "At this time, I could perform," says Mr. M. "every motion of the fingers, wrist, and shoulder, almost perfectly: the only materially defective motion was that of the elbow. The forearm forms an angle of 135° with the arm, but as it at one time made less than an angle of 90° , I hope, that with a little increased exertion, it will become perfectly straight."

Mr. M. adds the following ingenious remarks regarding sensation; but it will be proper to consider, in reading these, that there must have been injury done to the nerves of the arm, particularly in all probability to the median, by the wheel of the coach. Sensation commenced first in the little finger, 4 or 5 days after the operation, and in the course of 10 days more, existed in some degree in all the rest. During the successive and gradual development of sensation in the different fingers, he observed the following circumstances uniformly take place. The following are his own words:—"Before any nervous action can exist, there must be as much circulation in the part, as is not only sufficient to preserve life, but, when not exposed to a great degree of cold, to keep it in a proper temperature. This is necessary to the lowest degree of sensation, and I have always observed this sensation improved with an increased circulation of blood. The first or lowest kind of sensation, is that of pain, when the part is touched, without, however, any sense of the cause. I have often made the experiment on all my fingers, and I could never distinguish by the part possessed of this lowest kind of sensation, whether the pain was produced by a foreign body or not. The second kind of sensation, is that of heat and cold. It came into all my fingers nearly at the same time with the former, and it differs from all other kinds of sensations, in this that it is most perfect at first. I have always found, that a finger possessed of this sensation, and insensible to the feeling of touch, was a much better thermometer, more readily appreciating small differences in temperature, than one which had the sense of touch in perfection. This no doubt arises from the limited circulation of the blood, allowing the finger readily to assimilate itself to the temperature

of the objects, with which it is placed in contact. The third, and most perfect sensation, is that of touch, by which I mean the faculty of discerning the resistance and inequalities in the surface of bodies. This kind of sensation, I have uniformly found, is longer in being developed than the other two, and is capable of greater varieties of perfection. It was six months ere it existed in my mid finger."

I have repeatedly seen this gentleman since he gave me the above remarks. The arm is now quite straight, and in all respects perfect.

III. Case of Obstructed Respiration. By JAMES SYM, M. D.

FEB. 6th, 1826.—A female infant, four months old, was seized six weeks ago with cough, resembling hooping-cough; in recovering from which, her ears suppurated, her nostrils became stuffed, and the upper part of her face was affected with swelling, which caused her nose to appear flattened. This was attended with difficulty of breathing, which within these few days has become alarmingly severe during sleep. While awake she breathes naturally; but when she falls asleep her inspirations become stertorous, and at times so much obstructed as to threaten suffocation. During these exacerbations, her tongue is retracted to the back of her mouth, and her larynx becomes prominent, presenting a large pomum Adami; her countenance becomes pale, her eyelids blue and puffy, her extremities cold, and her pulse slow and irregular; till at length one of the croaking inspirations is suddenly cut short, as if the epiglottis had fallen down upon the rima, and then the agony is extreme, the pulse sinking below the rate of 50 beats per minute, and respiration being in appearance suspended for twenty or thirty seconds. A convulsive struggle at last rouses her from sleep, and she immediately seems to be completely relieved from her distress. The exacerbations recur very frequently in the course of the night, and during their intervals the breathing is performed with a gurgling noise, or snort, which does not resemble the sound of croup, but seems to arise from a moveable impediment, lying in the way of the inspirations, rather than from a narrowing of the passage. While awake she breathes with perfect ease, her voice when she cries is natural, and her cough is now almost removed. She also swallows freely, and the tonsils and uvula are scarcely redder than in health, although somewhat tumid. Pulse when awake 124, during sleep about 80, and sinking to 46 beats per minute.

Feb. 14th.—Has had every night a warm salt bath, her neck has been rubbed with anodyne liniment, and calomel purgatives have been given. On the 7th, a small blister was applied to the right of the trachea, since which she has been disposed to incline her head towards that side. The gum over the lower incisors being tumid, I cut down upon the teeth, and found them near the surface. The cough and vomiting had increased for some days, but now her health appears, except during sleep, to be every way sound; and of late the paroxysms have not in general been so violent as to cause her to awake.

March 5th.—Seems to have caught a cold within these few days, and both her cough and vomiting have returned. Discharged a mouthful of bloody purulent-like matter yesterday. Teeth have not yet appeared.

March 29th.—Upon the suggestion of Professor Burns, a pea was inserted on the 9th, into the back of the neck, but very little matter is discharged. Declines gradually in flesh, and her breathing, even while awake, is now occasionally accompanied by a slight croupy sound.

April 6th.—Some difficulty in swallowing, and difficulty of breathing more permanent. Uvula and fauces considerably swoln, and glands under right angle of jaw enlarged and indurated. The pea being removed, the issue has been made to discharge by dressing with cantharides ointment. Has vinegar applied to her head every morning, and uses quinine.

April 15th.—Since last report had two very severe attacks, in which she started from sleep, gasped for breath, and fell into a swoon. Fauces still swoln and smeared with frothy mucus.

April 20th.—Falling miserably off, and countenance losing its animation. More difficulty of breathing when awake, and coughs up a good deal of mucus. Discharged yesterday a considerable quantity of bloody matter, similar to that discharged on 4th March. Tumor at angle of jaw increasing.

April 23d.—Had an attack yesterday evening similar to those noticed in report of 15th current, but the swoon continued so long that she was supposed to be dead. Recovered with a dreadful convulsive struggle, and had another similar attack at six o'clock this evening, in which she died.

Inspection.—April 25th.—Tumour scarcely perceptible. The trachea and œsophagus being divided below the cricoid cartilage, and dissected upwards, a cyst, containing $2\frac{1}{2}$ oz. of thick greenish matter, was found extending from the left side of the vertebræ to the mastoid process of the right temporal bone, and reaching to the base of the cranium behind the fauces. Its coats were very strong and thick, being white and

of a fibrous appearance externally, and granular within. It was covered by the sterno-mastoid muscle and great blood vessels of the neck; and a small projection of it formed the tumour, supposed to be a scrofulous gland, at the angle of the jaw. The mucous membrane of the trachea was perfectly sound,—that of the epiglottis slightly thickened; and a few very minute red vessels were observed at the rima glottidis. Lungs healthy.

Remarks.—This was a perplexing case, the symptoms bearing a resemblance to those of certain forms of spasmodic croup, but differing from them in permanency during sleep. No fluctuation could ever be detected in the tumour, and it had exactly the appearance of a deep-seated scrofulous gland. It probably impeded respiration by pressing the os hyoides downwards, and thus causing the tongue to be drawn back so as to force the epiglottis upon the rima, which could only be counteracted by a voluntary effort. It may have originated in the inflammatory action propagating itself from the mucous membrane of the Eustachian tube to the subjacent cellular substance.

Kilmarnock, 2d December, 1827.

IV. *Case of Encysted Dropsy of the Abdomen.* By JAMES MORTON, M. D. Huntingdon.

TWELVE years before coming under my care, William Cartwright, æt. 36, a labourer, had been attacked with severe illness, followed by considerable enlargement of the abdomen. He had all along felt a sense of uneasiness at the region of the liver, and had had three or four severe attacks of illness since the commencement of his disease; in one of which, he was unable to perform any work for three months. When he applied to me, he had a troublesome cough, his pulse was accelerated, his urine scanty, his belly costive, and his breathing difficult in a recumbent posture. There was an uniform tumefaction of the abdomen, and the undulation of a fluid could be distinctly perceived, on striking it with the fingers. He complained much of a sense of weight in the hypogastric region. After the use of hydragogue medicines for some time, he felt no relief, except in his cough; the abdomen increased in size, and the other symptoms became so urgent, as to prevent him from reclining in a horizontal posture. He was only able to rest himself a little upon his hands and knees. He remained in this state about a week.

It was hinted to him, that an operation would give him the only possible chance of relief, to which he readily assented. Accordingly, on Friday the 6th of March, 1810, I introduced a lancet-pointed trocar into the abdomen, upon the linea alba, half an inch below the umbilicus. About an ounce of white purulent matter passed through the canula, and about an equal quantity of limpid serum followed. A probe was introduced, to clear the passage of the canula, and at the same time to ascertain that the peritoneum was perforated, but no further discharge could be obtained. A dressing and bandage were lightly applied to the parts.

Next day, a gelatinous substance was lodged upon the dressing, and a portion of a cyst protruded from the orifice, which broke short, on endeavouring to pull it away. On the evening of the 3d day, two considerable pieces were drawn out. On the 4th and 5th days, more pieces came away. On the 6th day, a large portion of cyst was taken out, its coat much thickened, and lined with purulent matter. Upwards of two quarts of a white yellowish fluid immediately followed, containing a number of hydatids. These were perfectly spherical, and pellucid, varying in size from a quarter of an inch to an inch in diameter. On the 7th and 8th days, near a quart, with hydatids, was discharged. On the morning of the 9th day, a large portion of thickened cyst was extracted, followed by four quarts of hydatids. One of them measured two inches in its longest diameter. Some were tinged with yellow. The discharge of hydatids continued about two months, amounting to two gallons and a half. On opening some of the cysts, their contents were as limpid as distilled water. No animalcula could be discovered in this fluid, by the help of a magnifying glass. The orifice has never been entirely closed, discharging at intervals small quantities of purulent serum, but without impairing his health. After a lapse of nearly seventeen years since the operation, Cartwright has been able this summer to earn two pounds a week, at paving the streets of Huntingdon.

Huntingdon, 3d Dec. 1827.

V. *On the Mineral Waters of Scotland.* By THOMAS THOMSON, M.D. F.R.S. L. & E., &c., Professor of Chemistry, Glasgow.

It reflects but little honour on the activity of our chemists, or the chemical skill of our medical men, that no attempt has hitherto been made to make the public acquainted with the constituents of the mineral waters with which Scotland

abounds. In Germany, France, Sweden, and England, the analysis of mineral waters has for many years constituted a favourite subject of investigation, and many publications on the subject have appeared in these countries. The *Taschenbuch für Bade-Reisende*, published in 1820, by Mosch, contains a description and analysis of no fewer than 65 mineral waters in Germany and Switzerland, collected chiefly from the *brochures* of different German chemists and physicians. M. Patissier, in his *Manuel des Eaux Minerales de la France*, published in 1818, has enumerated at least 137 mineral waters. But of these a great many are insignificant, and a very considerable portion of them have either not been subjected to chemical analysis, or the analysis was made so long ago, that no great dependance can be placed on the results. The mineral waters in France which have acquired celebrity, and which have been resorted to by invalids in any considerable numbers, scarcely exceed a dozen.

Dr. Donald Monro, in his *Treatise on Medical and Pharmaceutical Chemistry and the Materia Medica*, published in 1788, enumerates and describes 70 mineral waters in Great Britain, and even gives the constituents of several of them. But at that time, analytical chemistry had not made sufficient progress to enable medical men, on whom the labour of these kinds of investigation chiefly falls, to conduct them with much accuracy. Dr. Saunders, in his *Treatise on Mineral Waters*, published in 1800, gives the history and composition of 23 mineral waters, 9 of them foreign, 11 of them English, 2 Scottish, and the other the water of the sea. The greater number of the analyses contained in that work, if not the whole of them, were old, and performed by individuals scarcely competent to manage such delicate investigations. But in the second edition of that work, new and accurate analyses of some of the most celebrated English mineral waters, conducted chiefly by Dr. Marcet, were substituted. A few years ago, a *Treatise on the English Mineral Waters*, containing the characters and constituents of most of those which have acquired celebrity, was published by my friend Dr. Scudamore of London. I may take this opportunity of saying, that I have repeated some of the analyses contained in that work, and am enabled thereby to bear my testimony to the accuracy of the chemical examinations of the mineral waters which it contains.

I propose, in the present paper, to lay before the medical and chemical readers, a short account of such of the Scottish mineral waters as I have had an opportunity of examining.

Mineral waters have been divided by chemists into four

classes; namely, *Acidulous*, *Saline*, *Sulphureous*, and *Chalybeate*. The first class owe their taste, and other remarkable properties, to a notable quantity of *carbonic acid gas*, with which they are impregnated. The second class contain such a quantity of *certain salts* in solution as renders them purgative. The third class are impregnated with *sulphuretted hydrogen gas*. While the fourth class contain a certain quantity of *oxide of iron* in solution, which gives them an inky taste, and the property of striking a purple or black colour with the infusion of nut-galls.

The mineral waters of the first class are very rare. Only two or three are known to exist in Europe, and none of these occur in Great Britain. But Scotland possesses excellent springs belonging to each of the other three classes. For the sake of distinctness, I shall treat of each of these classes in succession.

I. SALINE WATERS.

These waters owe their purgative properties to five salts, one or more of which they always contain in solution. These salts are,

1. Sulphate of Soda.
2. Sulphate of Magnesia.
3. Common Salt.
4. Muriate of Lime.
5. Muriate of Magnesia.

Cheltenham, the most celebrated of the saline springs in England, holds in solution sulphate of soda and sulphate of magnesia; but the principal Scottish saline springs owe their purgative qualities to common salt, muriate of lime, and muriate of magnesia. The most celebrated of the Scottish saline springs are those of Pitkaithley, Dumblane, and Airthrey. They all lie in Perthshire, and at no great distance from the Ochils, a beautiful range of round backed mountains, which either rise through the new red sandstone, of which the lower part of Perthshire is chiefly composed, or else are deposited upon this sandstone or constitute a part of it. But these two last suppositions are not so probable as the first.

Pitkaithley, the longest known, and most celebrated of all the Scottish mineral waters, is situated near the East Bridge of Earn, about six miles south from Perth. The surrounding country is flat. But the near neighbourhood of the Tay and the Earn, together with the Ochils, and the magnificent scenery which characterizes Perth, render it a delightful residence during the summer months. The accommodations are good, and the expense moderate. All these advantages

united, have rendered it the most frequented of all the Scottish watering places. This mineral water has been long resorted to by the Scottish invalids. The first attempt to analyze it was by Dr. Donald Monro, in a paper inserted in the Philosophical Transactions for 1771. This was the only analysis of it, till Dr. Murray published a new and much more accurate one, in the Philosophical Transactions of Edinburgh for 1814.

The mineral springs at *Dumblane* were first noticed during the summer of 1813, in consequence, it is said, of a flock of pigeons being in the frequent habit of resorting to them. There are two springs, about half a mile distant from each other, situated in a field about two miles north of Dumblane, and the property of the Earl of Kinnoul. The situation is the western extremity of the Ochils, and not far from the skirts of the Grampians. The springs probably rise out of the new red sandstone, which constitutes the sub-soil in this district. The soil is light and sandy. Hence, though the climate is rainy, from the vicinity of the mountains, the roads are in general dry and good. This is a great advantage to invalids, when they have recourse to these waters for the recovery of their health. An analysis of Dumblane water was made by the late Dr. Murray of Edinburgh, and published in the Philosophical Transactions of Edinburgh for 1814. This analysis was widely circulated by those individuals who were interested in the character of the wells, and gave them almost immediate celebrity. They were speedily crowded, chiefly by the inhabitants of Glasgow and its vicinity.

Airthrey, where the third set of saline springs take their rise, is situated at the bottom of one of the westernmost of the Ochils, about two miles north of Stirling, and commands a magnificent prospect of one of the richest districts of Scotland. The view to the west is bounded by the Grampians, which are seen from hence, or at least from the Castle-hill of Stirling, to more advantage than from any other place. Four peaks tower conspicuous above all the rest, and are not more remarkable for their size than for the varied elegance of their form. These are Ben Lomond, Ben Ledi, Ben More, and Ben Voirlich—mountains which must be familiar to every one who has ever been in Stirling. The Ochils constitute the northern boundary, beginning, apparently, where the Grampians recede from the view, and continuing without interruption to the east, as far as the eye can reach. These mountains, though very steep on the south side, are mostly covered with grass or wood, and present a back-ground at

once lovely and magnificent; while they shelter the villages situated at their southern base, so effectually, that they have been always considered as the warmest spots in Scotland, and resorted to accordingly by the consumptive, as a last resource. The *Touch Mountains* on the south-west, skirted with wood—the numerous little hills that rise like castles from the *carse of Stirling*—the *Forth* flowing majestically through the level ground, and winding in so intricate a manner between *Stirling* and *Alloa*, that the eye, even in the most favourable situations, cannot trace its course, and spreading out into an extensive frith, which may be followed without interruption till it mingles with the eastern horizon,—all these, and a thousand other beautiful, rich, and picturesque objects, which it would be vain to attempt to particularize, render the view from *Airthrey* at once one of the most magnificent and beautiful that *Great Britain* can produce. The roads during summer are excellent in every direction. The rides, both to the west, east, and south, possess numerous beauties to attract the attention of the man of taste; and being the spots where many of the most eventful actions connected with the history of *Scotland* were performed, they have claims upon our curiosity of no ordinary nature.

The hill, from the bottom of which the *Airthrey* springs burst out, is composed of *traptuff*, which is very well exposed to view in a road cut through it from *Stirling* to the *Sheriff Muir*. In this hill there are several veins, one of which, consisting chiefly of *sulphate of barytes*, has a thin layer of *gray copper ore* traversing it. This vein was wrought at two different times, and abandoned in both cases in consequence of the ruin of the adventurers. No connexion, I believe, can be traced between the mineral springs and these veins. They probably proceed from the same red sandstone from which those of *Dumblane* and *Pitkaithley* take their rise.

The *Airthrey* springs have been known to the country people, and used by them as an occasional remedy, for more than forty years. But it was only in 1821 that they attracted the attention of *Sir Robert Abercrombie*, the lord of the manor. I analyzed two of them during the winter 1821-22, at the request of *Professor Towers*. During the autumn of 1827, I analyzed four more springs, at the request of *Sir Robert Abercrombie*. Finding a little *muriate of magnesia* in them all, and observing that *Dr. Murray* took no notice of any such impregnation in *Dumblane* water, I was induced to send for some bottles of *Dumblane* water, to examine it myself. I detected *muriate of magnesia* in it also; and found

the saline constituents of both exactly similar, though the proportions differed a good deal, and Dumblane water was much weaker than that of Airthrey.

I shall now lay before the reader the result of my observations on these waters.

I. AIRTHREY WATER.

At Airthrey there are six springs containing, all of them, the same saline constituents, but differing a good deal in their relative strengths. I analyzed two of these during the winter of 1821-22, and the other four during the autumn of 1827. The following table shows the specific gravity of these six springs, at the time I analyzed them.

No. 1.	Sp. Gravity.	No. 4.	Sp. Gravity.
	1.00915		1.00346
2.	1.00714	5.	1.00984
3.	1.00611	6.	1.00984

The water of them all is transparent and colourless, and without any perceptible smell. The taste is sensibly bitter and unpleasant.

It will be sufficient to state the experiments made on the water of No. 1., and then to give the constituents of the other five, all of which were determined precisely in the same way.

A. Action of Reagents.

1. It did not redden litmus paper, nor was it rendered milky by lime water: indicating the absence of free carbonic acid and of alkaline carbonates.

2. It was copiously precipitated by nitrate of silver, and the precipitate was redissolved by ammonia: indicating much *muratic acid*.

3. It was precipitated white by muriate of barytes; and the precipitate was not redissolved by nitric acid: indicating *sulphuric acid*.

4. It was copiously precipitated white by oxalate of ammonia: indicating much *lime*.

5. A portion of the water was reduced by evaporation to one-fifth of its volume. It was then freed from lime by means of oxalate of ammonia. A drop or two of phosphoric acid was then added; and, finally, a little phosphate of ammonia. A white precipitate gradually appeared, and lines drawn with a glass rod on the bottom of the glass became visible: indicating *magnesia*.

6. No trace of iron could be detected by the infusion of nut-galls, the prussiate of potash, or the sulpho-chyazate of potash.

7. One thousand grains of the water being evaporated to dryness upon a glass capsule, the saline residue was examined through a magnifying-glass. Numerous cubic crystals, having the taste of common salt, were visible. Some of these were picked out, dissolved in distilled water, and a drop or two of muriate of platinum was added to the solution. It was then cautiously evaporated almost to dryness, and again diluted with water; but *no* visible precipitate appeared. Hence, the alkali in the salt was *soda*, and *not potash*.

8. Some water acidulated with muriatic acid was poured upon the rest of the residue. Not the least effervescence could be perceived, even when heat was applied: indicating the absence of any visible quantity of *earthy carbonate*.

These preliminary trials showed the presence of the following constituents in the water—

1. Muriatic Acid.		3. Lime.		5. Soda.
2. Sulphuric Acid.		4. Magnesia.		

B. *Determination of the Weight of these Constituents.*

The whole quantity of fixed matter in a given weight of the water was determined in the following manner:—

1. An eight ounce phial was exactly balanced, and its weight in grains marked upon it by a diamond. 1000 grains of the water being introduced into this phial, it was placed in an inclined position on a sand bath, and left till the whole water had evaporated away. By this contrivance, all the little drops of water which are driven off in the usual way of evaporating in an open vessel, were retained, and nothing was exhaled except what had been previously converted into vapour. This prevents a considerable loss, which is always sustained, when a mineral water is evaporated to dryness in the usual way. When the water was all evaporated away, and the phial had become sensibly dry, it was left for some hours in a temperature considerably above 400°, to render the saline residue as nearly anhydrous as possible. Being again weighed, it was found to have increased in weight $13\frac{1}{2}$ grains. This is the amount of anhydrous salt contained in 1000 grains of the water.

2. 1000 grains of the water were heated, and then precipitated by oxalate of ammonia. The oxalate of lime was collected on a double filter, washed, and dried in the open air. It weighed 8.22 grains, equivalent to 2.806 grains of lime.

3. 1000 grains of the water were precipitated by nitrate of silver. The chloride of silver, after being washed, dried, and fused, weighed 27.75 grains, equivalent to 6.842 grains of chlorine.

4. 1000 grains of the water were precipitated by muriate of barytes. The sulphate of barytes being washed, dried, and ignited, weighed 1.42 grains, equivalent to 0.48 grain of sulphuric acid.

5. 50 cubic inches of the water were reduced by evaporation to 5 cubic inches. This portion being freed from lime by means of oxalate of ammonia, and filtered, was mixed with some phosphoric acid, and some carbonate of ammonia. The ammonio-phosphate of magnesia, which, precipitated, being washed, and dried in the open air, weighed 2.14 grains, equivalent to 0.314 grain of magnesia. From this, it follows that 1000 grains of the water contain 0.024 grain of magnesia.

6. 1000 grains of the water were freed from sulphuric acid, lime, and magnesia, in the manner just explained. The liquid was then mixed with carbonate of ammonia, to throw down any excess of barytes that might have been added. The filtered liquid was gradually evaporated to dryness in a platinum crucible, and the saline residue was exposed to a red heat, to expel the ammoniacal salts. The saline residue possessed the characters of common salt, and weighed about 6 grains, equivalent to 2.396 grains of sodium.

From the preceding experiments, it follows, that 1000 grains of the water contain, of

Sulphuric acid, (No. 4.)	0.480 grains.
Chlorine, (No. 3.)	6.842
Lime, (No. 2.)	2.806
Magnesia, (No. 5.)	0.024
Sodium, (No. 6.)	2.396
Total,	12.548

The amount thus found is almost half a grain less than the residue left when the water was evaporated to dryness. This may be partly owing to something which exists in the water having been overlooked. But the chief cause is the impossibility of rendering the muriates of lime and magnesia anhydrous. It was this that induced me not to reduce the lime and magnesia to calcium and magnesium, which would be their state provided all the water could be driven off.

These saline constituents were probably united together in the following manner:—

Common salt,	6.000 grains.
Muriate of lime,	5.826
Sulphate of lime,	0.716
Muriate of magnesia,	0.086

12.628

The slight difference between the amount of these salts and that of their constituents, must be ascribed to errors in the experiments. 12.628 grains is doubtless nearest the truth, as the water contains no excess either of acid or base. All the other five waters were examined in precisely the same way. The following table shows the saline contents of an imperial gallon of 277.274 cubic inches of each water :—

No. 1.	
Common salt,.....	423.843 grains.
Muriate of lime,.....	411.551
Sulphate of lime,.....	50.578
Muriate of magnesia,.....	6.075
	892.047
No. 2.	
Common salt,.....	359.616 grains.
Muriate of lime,.....	329.560
Sulphate of lime,.....	18.341
Muriate of magnesia,.....	4.168
	711.685
No. 3.	
Common salt,.....	263.948 grains.
Muriate of lime,.....	185.655
Sulphate of lime,.....	29.776
Muriate of magnesia,.....	1.597
	480.976
No. 4.	
Common salt,.....	135.792 grains.
Muriate of lime,.....	122.280
Sulphate of lime,.....	9.798
Muriate of magnesia,.....	9.546
	277.416
No. 5.	
Common salt,.....	513.060 grains.
Muriate of lime,.....	253.349
Sulphate of lime,.....	28.134
Muriate of magnesia,.....	13.713
	808.256
No. 6.	
Common salt,.....	537.567 grains.
Muriate of lime,.....	282.769
Sulphate of lime,.....	26.084
Muriate of magnesia,.....	2.438
	848.858

II. DUMBLANE WATER.

The sensible qualities of Dumblane water are nearly the same as those of Airthrey water. It is transparent and

colourless, has a saline and bitter taste, and is destitute of smell. The north spring, which I analyzed, is the stronger of the two. It would appear that its strength varies a good deal, probably according to the dryness or moisture of the weather. For Dr. Murray states its specific gravity to be 1.00475; whereas I found it 1.004901.

1000 grains of it, analyzed precisely in the same way as Airthrey water, were found to contain,

Common salt,.....	4.5628 grains.
Muriate of lime,.....	2.4788
Sulphate of lime,.....	0.6902
Muriate of magnesia,.....	0.0342
	<hr/>
	7.7660

Hence, the saline contents of the imperial gallon are,

Common salt,.....	320.961 grains.
Muriate of lime,.....	174.366
Sulphate of lime,.....	48.551
Muriate of magnesia,.....	2.405
	<hr/>
	546.283

Thus, it appears that Dumblane water contains a smaller proportion of muriate of lime than any of the springs at Airthrey, except No. 4. Two of the Airthrey springs, Nos. 3 and 4, are weaker than Dumblane; the other four are much stronger.

Dr. Murray's analysis of this water differs a good deal from mine. According to him, a wine gallon of Dumblane water contains—

Common salt,.....	192 grains.
Muriate of lime,.....	144
Sulphate of lime,.....	28
Carbonate of lime,.....	4
Oxide of iron,.....	1.36
	<hr/>
	369.36

While, by my analysis, the contents of a wine gallon are,

Common salt,.....	267.458 grains.
Muriate of lime,.....	145.296
Sulphate of lime,.....	40.456
Muriate of magnesia,.....	2.008
	<hr/>
	455 218

As the specific gravity of the water analyzed by me was higher than that of the water analyzed by Dr. Murray, I was prepared to expect a greater weight of saline constituents. But the difference between our results is much greater than can be ascribed to this cause alone. It is owing, I believe, to

the different methods of analysis which we employed. He evaporated a part of the water to dryness, in an open vessel, and satisfied himself with analyzing the dry saline residue left behind. Now, I know by experience, that when we proceed in this way, a considerable loss is sustained during the evaporation. I avoided all loss, by obtaining the saline constituents by precipitation, and by employing a portion of fresh water for determining each constituent.

As for the carbonate of lime, and oxide of iron, which Dr. Murray detected in this water, I could find no traces of either, though I was at some pains to look for them. If they exist at all, it can only be in a state of suspension, for they had disappeared before the water came into my possession. Dr. Murray did not detect the presence of magnesia in this water, because he did not think of concentrating it by evaporation, and then examining it by reagents; for its presence cannot be detected in the water as it flows from the spring.

III. PITKAITHLEY WATER.

Pitkaithley water is similar to that of Airthrey and Dumblane, in its taste and characters; but it is weaker than even the weakest of these mineral springs, except the spring at Airthrey, which I have marked No. 4. I have never had an opportunity of examining this water myself. But, according to the analysis of Dr. Murray, a wine gallon of it contains—

Common salt,.....	107.2 grains.
Muriate of lime,.....	156.0
Sulphate of lime,.....	7.2
Carbonate of lime,.....	4.0
	<hr/>
	274.4

Hence, the contents of the imperial gallon will be—

Common salt,.....	128.674 grains.
Muriate of lime,.....	187.150
Sulphate of lime,.....	8.641
Carbonate of lime,.....	4.801
	<hr/>
	329.266

The proportion of muriate of lime contained in this water, compared with that of the common salt, is greater than either in Dumblane or Airthrey water. It is possible, from this, that it may be better adapted for certain diseases than either of these. The comparative weakness of the water is of little importance when the drinkers are on the spot, because that is easily compensated, by drinking a greater quantity of it.

IV. INNERLEITHEN WATER.

This water, situated near the Tweed, in the classic country of Scottish song, has of late years acquired much celebrity, and been greatly resorted to. This has been in some measure occasioned by Sir Walter Scott's novel of St. Ronan's well, the scene of which is understood to be Innerleithen. I have not myself had an opportunity of examining the springs of this watering place. But Dr. Fyfe, of Edinburgh, has published the result of an analysis of two different springs at Innerleithen. The following table exhibits the saline contents of an imperial gallon of the water of each spring, according to his analysis:—

<i>Strongest Spring.</i>	
Common salt,	150.712 grains.
Muriate of lime,	91.320
Carbonate of magnesia,	49.107
	291.139

<i>Weakest Spring.</i>	
Common salt,	101.787 grains.
Muriate of lime,	45.612
Carbonate of magnesia,	25.447
	172.846

This mineral water is much weaker than either Airthrey, Dumblane, or even Pitkaithley. But from the quantity of carbonate of magnesia detected in it by Dr. Fyfe, the probability is, that it is an acidulous water. I should think it likely that an imperial gallon of the strongest spring contains at least 55.2 cubic inches of carbonic acid gas; and the weakest at least 28.6 cubic inches, besides what exists in the carbonate of magnesia detected in the liquid. It would be interesting to ascertain whether this conjecture be well founded. Should it be so, Innerleithen would be an acidulous spring, and would belong to a class of waters not hitherto discovered in Great Britain.

V. WATER FROM THE SPAR CAVE, SKYE.

The celebrated spar cave, situated on the coast of Strathaird, and in the estate of Mr. Macalister of Skye, has within it a small lake of fresh water. As this water is necessarily in contact with the carbonate of lime, which lines the cave, I had the curiosity to examine it, in order to ascertain whether it contained any thing peculiar.

The water is limpid, and has no particular taste or smell. Its specific gravity was 1.000249.

1000 grains of it being evaporated to dryness, left a white residue, weighing 0.34 grain. This residue being digested in water, 0.28 grain were dissolved. The solution was not affected by muriate of barytes, but it was precipitated white by nitrate of silver, carbonated ammonia, and oxalate of ammonia. It was therefore (at least chiefly) muriate of lime.

The insoluble portion dissolved in nitric acid, except a trace of silica. The nitric solution, being evaporated to dryness, left 0.1 grain of nitrate of lime, equivalent to 0.06 grain of carbonate of lime. Hence, the constituents in 1000 grains of the water are—

Muriate of lime,	0.28 grain.
Carbonate of lime,	0.06
Silica, a trace,	
	0.34

And the imperial gallon contains—

Muriate of lime,	19.604 grains.
Carbonate of lime,	4.201
	23.805

In all probability, the muriate of lime in this water is derived from the action of the calcareous spar on the common salt, originally contained in this water. What has become of the soda, it is not easy to guess.

[*To be continued.*]

VI. *Observations on a particular Species of Ophthalmia, occurring in connexion with Porrigo, and usually termed Scrofulous Ophthalmia.* By THOMAS CHRISTIAN, Consulting Surgeon to the Liverpool Ophthalmic Infirmary.

NOTWITHSTANDING the improvements which have of late been made both in the diagnosis and the treatment of diseases of the eye, yet much confusion and inaccuracy still exist in determining the constitutional disposition, which frequently gives rise to such local diseases. This is particularly the case with regard to those affections of the eye which are referred to a scrofulous diathesis, as, on comparing the opinions of authors on this subject, no two can be found to correspond precisely in their ideas. But the general prevalence of scrofulous ophthalmia is a position, which most authors who have written on diseases of the eye, are willing to admit. It has been stated by Professor Beer, that ninety out of every hundred cases of ophthalmia, affecting children, in Vienna, owe their origin to scrofula; and Professor Benedict, of Breslaw, has made a similar assertion, in reference to the

same disease, occurring in that city. An eminent surgeon of this country, not less distinguished for his physiological and anatomical attainments, than for his able and learned disquisitions on various surgical diseases, especially on those of the eye, which are recorded in his lectures, as published in the *Lancet*, has likewise subscribed his testimony to the general prevalence of scrofulous ophthalmia in this island. The constitutional influence of struma, in modifying diseases of the eye, cannot indeed be denied; and the existence of a distinct and definite disease affecting this organ, and originating in the same diathesis, must also be allowed: yet, the affection, which is described by many writers, under the designation of scrofulous ophthalmia, embraces, I conceive, many varieties of disease, and certainly one differing from this particular ophthalmic affection, no less in its constitutional origin, than in its general character and means of cure.

Whoever has been much engaged in the treatment of these diseases, must have observed the frequent coincidence of inflammation of this organ, with a peculiar eruption, affecting the face and head; occurring generally in children, and constituting a most intractable modification of disease. The eruption to which I allude, is that which Willan has termed porrigo;* but among the varieties enumerated by this author, it is the porrigo larvalis and the porrigo favosa only which give rise to the disease now under consideration.

To this species of ophthalmia I have ventured to give the name of *ophthalmia porriginosa*, not only from its appearing in concurrence with this eruption, but from its bearing certain features, sufficiently characteristic in themselves, to warrant such a distinction being made. By authors and practitioners, however, in general, the eruption has been regarded as a casual coincidence, and the ophthalmic disease treated on general principles; and not unfrequently, when the symptoms have run high, or the ophthalmia has proved threatening to the organ, the eruption has been encouraged, with the hope of relieving the local affection.†

Now, if the eruption and the disease stand to each other in

* Porrigo is a cutaneous disease without fever, usually exhibiting an eruption of the pustules termed achores and favi.—*Vide* Willan.

† “When the ophthalmia is accompanied, or has been preceded by an eruption of pustules on the hairy part of the head, (which circumstance is by no means uncommon in children), it will be proper to shave the head twice every week; and after cleaning it morning and evening, either with milk and butter, or with soap and water, to keep it covered with an oiled silk cap, which should be applied each time dry and warm. The cap promotes a copious perspiration from the pores of the head: and sometimes occasions an increase in the eruption of pustules. In this way it forms a

the relation of cause and effect, which I conceive they do, such a practice, although recommended by authority, and apparently founded upon the established principle of derivation, must surely, in many instances, be productive of great mischief. But it may be asked, and the question is one of considerable importance, whether this particular kind of ophthalmia proceeding from a diathesis peculiar to itself, may not sometimes appear as a solitary symptom, or as the first of that series which constitutes the eruptive disease; and, in that case, whether its features are sufficiently well marked, to enable the practitioner to detect it, and to apply the appropriate remedies? In answer to this question, I may safely affirm, from a long course of observations, that the disease does occasionally occur under these circumstances, and that it is not difficult of recognition to an experienced eye: but as the complaint must be first well understood, in connexion with the eruption, which gives it its specific character, I shall now only consider it in that point of view.

Porriginous ophthalmia is a disease of early life, affecting principally children, though sometimes seen in the adult subject. It is usually accompanied by an eruption of pustules on the face or head, which go through the various stages of suppuration, ulceration, and desquamation: and if the eruption in its pustular form shall have disappeared before the inflammation of the eyes have commenced, still there will, almost always, be found some traces of the original disease, in the form either of scabs or fissures, situated behind the ears, at the commissures of the palpebræ, or at the junction of the alæ nasi with the cheeks. It is worthy of remark, that when the fissure or chap is situated between the lips, attended with excoriation of the nostrils, the upper lip often swells, assuming the appearance of what is vulgarly termed the scrofulous lip, which may be one cause of the disease being referred to this origin.

Sooner or later, however, the ophthalmia commences, and the eye in a short time presents a highly vascular state of the conjunctival membrane. The inflammation appears in different degrees of intensity, in different parts of the albuginea; and the vessels, which are much enlarged, are seen to run in clusters, towards certain parts of the cornea, whilst this transparent tunic contiguous to these vessels is more or less clouded. On minute inspection, a pustule or vesicle will frequently be discovered at the apex of each of these fasciculi,

powerful derivation from the eye, and has frequently afforded very great assistance towards the cure of the ophthalmia."—*Vide Ware's Remarks on the Ophthalmia*, p. 44.

or bundles of red vessels ; but, very often, depressions will be found to exist, instead of raised pustules, situated at the margin of the cornea, or on the intermediate surface. On some occasions, the cornea will be perfectly transparent; and free from either pustule or ulcer, whilst the albuginea, with its vessels fully distended with blood, will present one or more yellowish spots, apparently elevated above the surrounding vascular superficies. These are so many ulcers, which by their extreme irritability keep up, if not give rise to, the inflammatory excitement in these parts. Similar ulcers are sometimes found on the lining membrane of the palpebræ. Wherever they are situated, they render the motions of the eyelids very painful ; so that the eyes are generally kept fast closed, and their inspection, in consequence, becomes a matter of extreme difficulty. The sight being affected, only in proportion to the degree of opacity, and as this is but inconsiderable in some instances, the vision remains perfect ; but the sight will necessarily be more or less impaired, according to the extent and density of the opacity of the cornea. Very often black spots may be observed arising from the attenuation of the cornea, occasioned by the ulcerative process, which sometimes perforates this tunic, and causes the incarceration of a portion of the iris. The discharge which issues from the eye, consists principally of tears, mixed more or less with a sanious fluid, which discolours the linen applied to the parts, and is often considerable in quantity. Although the pain attendant upon this affection of the eyes is not very great, yet, from the great irritability of these parts, the patient not only carefully shuns the light, but desires to lie with the face downwards, whilst the hands are almost unceasingly applied to the forehead.

The disease very frequently assumes a chronic form, and continues to exist for several months, leaving one or more opaque spots on the cornea, the consequence of lymph effused in its coats. The conjunctiva palpebralis likewise becomes changed in its structure, and from the long continuance of the inflammation, which frequently extends by continuity to this part, there arises a morbid sensibility, which may be termed, very properly, *impatience of light*, and which is often very difficult of removal. In these chronic forms, the disease will continue to exist long after the removal or cessation of the original complaint which gave rise to the ophthalmic affection, and must be cured by a particular mode of treatment adapted to the peculiar character of the existing manifestations of diseased action.

Having given a brief sketch of the leading features of this disease, it now remains for me to put the reader in possession

of some of the observations which led me to associate the affection of the eye with that of the skin, and to prove that the one is, in general, but an accidental consequence of the other.

In the course of my observations, I have remarked that this complaint, occurring in conjunction with porrigo, which is a disease of infancy, is seldom met with before the child has attained the sixth month, or that period of life when it has acquired the power of relieving uneasy sensations, as itching of the skin, by the use of its finger nails, by which means, it may easily be supposed, the virus is conveyed from the eruption or pustules to the eyes. At the same period of childhood, and probably from the same cause, the head being affected at the time with porrigo, cutaneous ulcers, slight scratches, or superficial wounds on the extremities, have assumed the porriginous character, and even the vaccine vesicle has been known to degenerate into this species of pustule, and that on one arm only, the other still preserving its characteristic vesicular appearance.

Another circumstance in favour of this hypothesis, is the stage of the eruptive disease, at which the ophthalmia commences; for the affection of the eyes is not, in general, one of the early symptoms, but occurs after the eruption has existed three or four weeks, which corresponds with Willan's observations on porrigo, "When the complaint," (porrigo), he says, "has proceeded for three or four weeks, the eyes become inflamed, and there is at the same time an inflammation of the cilia, succeeded by a purulent discharge. A similar discharge takes place from behind one or both ears, and soon afterwards the parotid and submaxillary glands become enlarged, hard, and painful, and often suppurate.*"

That a fissure of the skin, which is one of the sequelæ of porrigo, should give rise to ophthalmia, will not be readily imagined, yet the frequency of its occurrence after the primary disease had been removed, leaves no doubt in my mind of the fact. Children in whom both diseases, (the ophthalmia and the porrigo) had been apparently cured, have returned soon afterwards with the complaint in the eyes, unattended by the pustular eruption; and on these occasions, an ulcer or fissure has been invariably found, either behind the ear, betwixt the alæ nasi and cheek, or at the commissures of the eyelids, which being removed by appropriate remedies, and the inflammation once more subdued, the latter affection has not again returned.

* *Vide* his Work, edited by Ashby Smith, page 7.

In reference to the mode of communication, much light may be derived from the manner in which the porrigo spreads from one part of the body to the other, as by continuity from the head to the neck, or from the parts affected coming into contact with other sound parts, as the chin with the breast, or by direct inoculation through the medium of the hands, as in the instance already mentioned of degenerate wounds, scratches and vaccine vesicle; and in affections of the genitals, occasionally seen, especially in females.

The puriform discharge, which occasionally takes place in porrigo, * both from the nostrils and the meatus auditorius, I have no doubt, is induced by the acrid matter discharged from the contiguous pustules obtaining access to these parts, and the fact may be adduced in illustration of the local action of the virus on the eye.

The acrid and very irritating nature of the matter which is thus conveyed from place to place, and from individual to individual, is clearly seen in its effects upon the absorbents, and lymphatic glands of the neck and head, which become inflamed, and unless the most active measures are employed, generally proceed to suppuration. In like manner, it is presumed, the specific virus being conveyed in one or other of these ways to the eye, or parts adjacent, lays the foundation for the disease, which forms the subject of this paper.

The presence of the porriginous eruption will form a just ground of distinction, between this and other diseases of the eye; and the characteristic marks of the strumous species of ophthalmia, as they are described by Saunders, † will form an equally just ground of distinction between this and the porriginous kind.

From what has been said respecting the peculiar nature of the virus and its mode of action in producing ophthalmia, it will appear obvious, that the removal of the eruption, as the occasional cause, and the extinction of the ulcerative process, will form the principal indications of cure.

Whatever external appearance of active inflammation may exist, provided it be of the specific character, usually attendant on porrigo, and occurring in conjunction with pustules or

* Dr. Willan, in describing porrigo favosa, says; "In almost every case, the eruption is attended with discharge from behind, or within the ears, with swelling and hardness of the upper lip, with enlargement, and often ulceration of the ciliary glands, and with inflammation of the eyes."

† "Pustules of the conjunctiva, aggregated at the margin of the cornea, or appearing separately or successively over any part of its surface, constitute a specific character of strumous ophthalmia, with which the morbid appearances peculiar to that constitution are in various degrees connected." *Vide Saunders on the Eye, by Dr. Farre, p. 95.*

ulcers of the globe, bleeding either locally or generally is seldom necessary; except, indeed, the inflammation shall have extended to the internal tunics of the eye characterized by pyrexia, severe pain of the eye, forehead, &c. Blistering, likewise, which constitutes so valuable a remedy where a derivative is required in these cases, is not only useless, but generally tends to aggravate the eruptive disease, and thereby proves an additional source of irritation. The cooling sedative lotions in such general use are for the most part unavailing here: the object kept in view in the treatment of this particular affection, being not so much the alleviation of pain and irritation, as the production of a new action, in parts already under the influence of a specific disease.

Corresponding with these views, it has been found by experience, conducted upon rather an extensive scale, in a public institution, where a large proportion of the cases are of this class, that the mercurial applications constitute the best remedies. A weak solution of the oxymuriate of mercury, composed of one quarter of a grain to the ounce of water, forms a very useful application: or if there be much discharge from the eyelids, and especially if accompanied by excoriation of the parts around the eye, the mixture of calomel and lime water, known by the name of black wash, will be found to be one of the best local remedies. The unguentum hydrargyri nitratis mitius, or the unguentum hydrargyri præcipitati albi, affords an excellent dressing for the eruption, or ulcers about the face and ears, which require to be attended to; a small portion of the former, or the red precipitate ointment diluted, is to be introduced within the palpebræ at bedtime.

Previously, however, to the use of these latter means, a weak solution of the argentum nitratum, in the proportion of two grains to the ounce of distilled water, should be dropt on the surface of the globe, and this ought to be repeated every second day, as long as the ulcers continue. It has already been remarked, that the morbid action has been kept up, in the fine textures of the eye by the presence of an ulcer, or fissure at the corner of the eyelids, which will be frequently observed to bleed, whenever the palpebræ are forcibly separated. These fissures must be touched, every second day, with a saturated solution of the nitrate of silver; and during the intermediate days, with the weak ointment of nitrate of mercury.

The vascularity together with the irritability will generally disappear with the healing of the ulcers, a strong proof that the specific action of these vessels is overcome; but should a degree of morbid sensibility still remain, a collyrium consisting of four

grains of the sulphate of zinc, to an equal number of ounces of water, combined with a drachm of the vinum opii, dropped into the eye, once or twice a day, will be found highly useful. For the constitutional treatment, I must refer my readers to Dr. Willan's work before cited; also to Mr. Lawrence's Lecture on Scrofulous Ophthalmia, as reported in No. 135, Vol. 10, of the *Lancet*, where some judicious instructions are given for correcting this peculiar habit of body. Frequent ablution of the body with warm water, will materially assist the curative means which have been just proposed for the fulfilment of the two principal indications pointed out in the treatment, viz. the removal of the eruption, and the destruction of the ulcers.

If I have expressed myself, on this occasion, with a minuteness, which the nature of the subject may not appear to some to have merited, it should be considered that the theory with regard to the origin of the Ophthalmia in question, is one opposed to the generally received opinion of the profession, and consequently, as a new doctrine, demanded a very close examination of all the phenomena on which it is founded: nor could the cure of a disease, in which so important an organ as the eye is interested, be treated of, without pointing out with care the most suitable remedies, with their order and mode of exhibition, as well as the principles on which they are supposed to act, so as to prevent, if possible, the injudicious application of such powerful agents.

I would observe in conclusion, that however precise or tedious in detail, I may appear to have been; if I have in any degree succeeded in making out the point, which as a friend to science it has been my most anxious wish to establish, with respect both to the disease, and its treatment, the design of this paper has been fully answered.

Bold Street, 13th Dec. 1827.

VII. *On the Epidemic Dysentery which prevailed in Glasgow, during the Autumn of 1827.* By JAMES WILSON, Member of the Faculty of Physicians and Surgeons of Glasgow.

THE summers of 1825 and 1826 were remarkable for their intense heat; and during the succeeding autumns, we had in this city and neighbourhood, many cases of severe cholera morbus, not a few of which ended fatally. Last summer the heat was moderate; there was more moisture, and much of that kind of weather which is productive of rank and exube-

rant vegetation. Towards the end of July or beginning of August, many cases resembling cholera made their appearance. For a day or two there were vomiting and purging of a bilious matter, after which the cases assumed the form of dysentery, with early symptoms of extreme weakness. In many parts of the city and suburbs, the disease broke out simultaneously, although at its commencement it was perhaps more observable on the south side of the river. In the burgh of Gorbals, where the population is very dense, a few deaths, occurring in one street, inhabited by several thousands, happened unfortunately to be noticed in one of our newspapers, as an instance of great mortality, and gave rise to that groundless fear, which pervaded and distracted the public mind, during the whole course of the epidemic. The disease continued to increase till about the middle of October, extending to the villages and country districts in every direction, since which it has been gradually on the decline, and now (December) very few cases are to be seen.*

So far as my observation goes, this complaint for the most part commenced with simple diarrhœa, succeeding to a constipated state of the bowels, which, after a short time, was attended by severe and long continued attempts to evacuate, which were frequently abortive, or attended by the discharge of only a small quantity of blood and mucus. This discharge always produced some mitigation of the symptoms, and frequently entire temporary relief from pain. Natural stools were procured occasionally, perhaps once in four or five days, generally greenish and very fœtid. Prolapsus ani was a frequent symptom, particularly in children. The pulse was small and feeble, often not quicker than natural, the skin harsh and dry, mouth clammy, the tongue generally furred, sometimes red and dry; there was great thirst, the urine was scanty, and there was no appetite. There was pain, sometimes over the whole abdomen, but more frequently confined to the seat of the colon, very severe for a short time before and immediately after an evacuation. In the more severe cases, the disease was sometimes ushered in by a degree of coldness approaching to rigor, and in these there was fixed pain in the region of the bladder and right side of the abdomen, much increased by pressure. The complaint frequently continued for ten or fourteen days, notwithstanding every treatment, and then

* Dysentery was epidemic in Glasgow, in harvest 1736, and also 28 years ago. At the former period, the *stibium ceratum* was considered a specific, and hardly any other medicine was used. See some interesting letters on this subject of date 1738, from Mr. Paisley and Mr. Gordon, in the *Philosophy of Medicine*, vol. v. pp. 166, 170. 4th edition.

gradually subsided or terminated in diarrhœa, which frequently continued for many weeks.

The fatal cases were few, in proportion to the numbers attacked and the severity of the symptoms. Death sometimes took place so early as the sixth day, but more frequently not till the expiry of two or three weeks, when the patient was completely worn out and died from pure exhaustion. The inspections were of course not numerous. I have seen a few, and have been favoured by some of my friends with particular reports of the morbid appearances, an account of which shall be given along with a few cases at the end of this paper.

The medicine and means of cure were various, according to the views of different practitioners. Sulphas magnesiae, calomel, pilulæ hydrargyri, unguentum hydrargyri, pulvis ipecacuanhæ, pulvis antimonii, and opium in a variety of forms, with anodyne injections, were all used with more or less advantage. Bleeding from the system, and locally by means of leeches to the seat of pain and verge of the anus, blisters to the abdomen, the warm bath, sinapisms, and embrocations were also found useful. Acetas plumbi and opium, in the form and with the same view as Dr. Dewees gives them in uterine hæmorrhage, were used in some cases with considerable effect. All practitioners, however, did not use or approve of every article in the above enumeration; but at the commencement of the disease, purgatives were almost uniformly prescribed, followed by anodynes, and the rest of the treatment depended on the urgency of the case, and the peculiar views of the medical attendant. It may be necessary therefore, in order to give a more distinct and detailed account of the subject, to class the practitioners, according to their different modes of treating the complaint.

First, There were those, who, unfettered by any theory concerning the cause or seat of dysentery, met the disease as it presented itself, perhaps thinking, with Sydenham, that there are many kinds and degrees of it, and that this dysentery on the banks of the Clyde might be a very different complaint from that met with on the banks of the Ganges. Accordingly if there was only frequent desire to go to stool, with moderate pain in the abdomen, they generally gave a dose of opium, oleum ricini, or sulphas magnesiae; and these they often alternated day after day, according to the urgency of the symptoms, occasionally prescribing a dose of calomel to correct and improve the intestinal secretions. They even did not scruple to bleed, if the patient was of tolerable strength, and the pulse &c. indicated its necessity. In short they did any thing or gave any thing which the symptoms suggested, being neither

held back by prejudice, nor urged forward by a reckless predilection for any one particular mode of treatment.

The *second* class was composed of those who considered the disease at its commencement to be an inflammatory affection of the mucous membrane of the colon and rectum, yet so slight that few of them in general ever found it necessary to use the lancet. They contented themselves with exhibiting laxatives in the beginning, with opium, and Dover's powder to allay the tormina, the warm bath to relieve pain and promote diaphoresis; and, convinced of the efficacy of mercury in inflammatory affections in general, they gave calomel freely both as a purgative, and to improve the vitiated intestinal secretions. If there was much pain, leeches were applied to the abdomen, or around the anus, opiate enemata were freely given, and when the pain was severe and fixed, turpentine, sinapisms, or blisters, were applied to the belly. There were some however of this class, who, believing that where inflammation in whatever degree is present, nothing can justify the omission of active antiphlogistic measures, bled freely both generally and locally, nor neglected any of the other means employed by their less resolute and more temporizing brethren.

The *third* and *last* class consisted of those who entertained doubts as to the inflammatory nature of this epidemic on its first attack, at least to that extent as to require, or even to bear bleeding under any circumstances. They saw, to be sure, their patients writhing under extreme pain, but at the same time they found the pulse feeble, the bowels discharging considerable quantities of blood, and many other symptoms present of great debility. These circumstances, and the perfect recoveries they every day witnessed where bleeding had not been had recourse to, soon led them to consider this epidemic as not at all that species of dysentery in which to use the lancet as a general measure. They were rather disposed to view it as a surcharged state of the portal vessels, occasioning irritation, distention, and even rupture of the ultimate branches spread upon the inner coats of the intestine; and they had no doubt that inflammation might then follow as a consequence, giving rise to all the distressing symptoms already enumerated. In many of the worst cases, dark coloured blood was discharged from the rectum in great quantities, similar to what often takes place before death in severe cases of typhus; and in almost every instance of *post mortem* examination, the vena portæ and its branches were found in a state of congestion. This class of practitioners were farther led to infer this state of the portal vessels from

the entire suspension of the biliary secretion ; for, with few exceptions, the complete want of bile was manifest throughout the whole course of the disease ; and only when that secretion was restored did the symptoms subside. Thus, they were led to give mercury, with the view of acting upon the liver, and also of subduing any inflammatory affection of the colon or rectum which might exist. If, after a dose or two of calomel, to the extent of ten grains, with two grains of opium, or a scruple of Dover's powder, the disease did not subside, which it sometimes did, the dose of calomel was diminished, and repeated morning and evening, according to the urgency of the case or the effects produced. With this was conjoined a dose of castor oil, every second or third day. If the mouth did not become affected at an early period, mercurial frictions were had recourse to, and so soon as ptyalism was produced, fæculent discharges appeared, the pain subsided, and the patient was generally considered safe. Blisters, the warm bath, opiate enemata, and even leeches, in certain cases, were found powerful auxiliaries.

These three kinds of practice were in general use in the treatment of this epidemic. Yet there were often more distinctions. Thus, some who in the beginning bled, because dysentery was considered an inflammatory affection, very soon gave it up, on finding that it did not answer in general, and betook themselves to calomel and opium. Others again were led from the use of calomel, to the employment of opium alone, which never failed to procure at least temporary relief from pain.

Latterly, my views have coincided with those who consider the liver chiefly in fault, as I have never seen any thing like permanent relief until the secretion of healthy bile took place. My principal indication, therefore, has been to restore the biliary secretion. It may be said, that the re-appearance of healthy bile, after its suppression for some time, is rather a consequence than a cause of the subsidence of dysentery ; but I view it very differently. It appears to me quite inconceivable how the disease is at all removable while there is congestion of the vena portæ and its ultimate abdominal branches. The blood cannot be removed from the delicate surface of the intestines, until this congestion is overcome. There it must remain, distending, irritating, and rupturing the vessels, inducing subacute inflammation, followed by thickening and ulceration of the mucous coat. Nor can this congestion and its consequences ever be removed, until the liver, which is inactive, returns to the proper performance of its functions. It appeared to me, that those were the mildest

cases, where natural stools occasionally appeared, and *vice versa*, those the most severe where the evacuations could not by any means be early procured.

My plan of treatment, therefore, was nearly that noticed briefly under the *third* class of practitioners. I never found it necessary, in a single instance, to bleed, either generally or locally; on the contrary, the pulse being feeble, the appetite deficient, and the discharges of blood and mucus frequent, debility at a very early stage appeared in the great majority of cases a prominent feature, requiring cordials and light nourishing food. The warm bath I found of much use, in soothing, allaying pain, and inducing sleep. On account of the debility at the commencement, and its inevitable increase as the disease advanced, I felt averse to give calomel in such large doses, or even to carry it so far as some practitioners did. As those who bled, in this epidemic, were not justified in bleeding to such an extent as is considered proper in warm climates, so neither did I think it safe or desirable to give the very large doses of calomel, or introduce mercury into the system with that rapidity, which is found absolutely necessary in treating the malignant dysentery of the East. In that climate, the disease runs its course in two or three days, and hence, despatch is the *sine qua non* in the treatment. Here, however, it seldom gave way in less than ten or fourteen days, and often continued a much longer period. Ten grains of calomel at first, always conjoined with opium, and two or three grains morning and evening afterwards, seemed to me sufficient in the generality of cases. I did not derive the same benefit from rubefacients and blisters, in this epidemic, as I have experienced from them in other affections of the abdomen. Opiate enemata, frequently repeated, had a very beneficial effect, and in some cases I found it necessary to continue their use for many weeks, to keep in check occasional pain and troublesome diarrhœa. Towards the end of the disease, when the pain had abated, and the evacuations were nearly natural, but much too frequent, I found great advantage from port wine, brandy-toddy, beef-tea, chicken-soup, and every variety of mild farinaceous food.

I shall now conclude this paper, with the short detail of three cases; the first two communicated to me by Dr. Macfarlane, and the third by Dr. Andrew Buchanan; and I feel much indebted to these gentlemen for being enabled to give such a particular account of the appearances on dissection.

Case 1.—W. C. a weaver, aged 28, died after labouring under well marked symptoms of dysentery for 19 days. After the fourth day, the stools consisted wholly of slime and

blood, without any mixture of fæculent matter; and, three days before death, several large shreds of whitish substance, like half organized lymph, were voided with much pain and difficulty. There was fixed pain, increased by pressure in the hypogastrium and over the arch of the colon. The pulse ranged from 110 to 140. Urine scanty and voided with pain.

Inspection 26 hours after death.—Peritoneum covering intestines of a very pale colour. Mesentery, particularly the mesocolon, loaded with many large veins. A number of livid spots of an oval form were visible through the peritoneal coat, particularly in the arch and sigmoid flexure of the colon. The mucous coat of the large intestine was in a state of complete disorganization, exhibiting, however, the morbid appearances in three different stages of progression. In the first, which was confined chiefly to the cœcum, and ascending colon, the mucous tissue was highly vascular, tumid, and œdematous; it was more movable on the superjacent coat than natural, but not detached nor ulcerated. In the second stage, the disease had gone the length of ulceration; small ulcers, with elevated and irregular edges, varying in size from a pin's head to a split pea, were found in many parts of the colon. These were surrounded by livid coloured spots, arising from sanguineous effusion, under the mucous texture, and corresponding to the dark spots observable through the peritoneum. In the third and most advanced stage, which involved the sigmoid flexure of the colon and the rectum, the mucous coat was completely detached and gangrenous, hanging loosely into the cavity of the bowel in irregular shreds. The other coats of the rectum and inferior part of the colon were considerably thickened. Several of the mesenteric glands were enlarged, soft, and of a dark brown colour. The substance of the liver, and the minute, as well as the main branches of the vena portæ, were loaded with dark coloured blood. The gall-bladder was empty. The mucous coat of the small intestines was perfectly healthy, with the exception of a few vascular spots near the termination of the ilium. The inner coat of the bladder was highly inflamed, resembling a piece of red velvet.

Case 2.—A. G. aged 16, had the disease well marked, and died about the 26th day. She passed blood by stool in much larger quantities than the last patient, but otherwise the symptoms were nearly similar.

Inspection 19 hours after death.—No traces of peritoneal inflammation, but all the large intestines had a marbled appearance from dark coloured spots within their cavity. The mucous coat, throughout its whole extent, was highly vascular,

and covered by ulcerated spots of various sizes, many of which, particularly in the rectum, were surrounded by thickening or induration, with some patches of ecchymosis. The mesenteric glands, vena portæ, liver, and gall-bladder, were nearly in the state described in the last case.

Case 3.—J. B. middle aged, a blacksmith, was attacked with dysentery on 30th September, and was first visited on 4th October. The stools consisted entirely of blood and mucus, without any fæculent matter. There was little febrile excitement, pulse 100; and skin natural; tongue clean and moist. Ten grains of calomel, with two of opium were prescribed, and the same repeated in the evening. One drachm of unguentum hydrargyri fortius was also ordered to be rubbed on the abdomen morning and evening. These remedies were continued next day, the dose of calomel being reduced to five grains. On the 6th, the mouth being affected, the mercury was stopped. The patient was easier, and the bloody discharge had disappeared. On the 7th, after a dose of castor oil and laudanum, he had a copious fæculent stool, free from blood. On the 8th, however, the blood returned with severe pain all over the belly, particularly at pit of stomach, which continued unabated, notwithstanding every remedy. He died on the 13th. In this case, the pulse was generally between 90 and 100, feeble, and the skin was rather below the natural temperature.

The body was inspected on the 14th. No peritoneal inflammation. Colon, both on its inner and outer surface, of a blackish colour, with a tinge of green, most conspicuous at the transverse portion. Mesocolon highly injected with blood, but no blood vessels could be seen on either surface of the colon. The mucous membrane seemed for the most part entire, small portions of it only being partially eroded. The coats of the colon and rectum were lacerable by the slightest force, from which circumstance, and from the appearances described above, the gentlemen present at the dissection concurred in thinking the colon in a state of sphacelus. The small intestines were natural, with the exception of some red spots on the inner surface of the ilium. The stomach contained a large quantity of healthy bile.

The first two of these cases are a fair specimen of many more in my possession, and of what I have myself witnessed. The third has some peculiarities, and at first sight would seem to militate against many of the opinions expressed in this paper. The quantity of healthy bile found in the stomach will perhaps be considered sufficient proof, that the liver was acting almost up to the time of death. I admit that it may have secreted

bile, three days after the mercury was commenced; and to this medicine, I would be inclined to ascribe the fact of that viscus having resumed its functions; but it appears that a fatal impression had been made on the colon and rectum, at an early period of the disease, and that although some mitigation of the symptoms took place on the 7th, the structure of the bowels had been severely injured. After the cause was removed, this effect still continued, and resisted every kind of treatment. In this case also, the liver being capable of acting up to the time of death, no congestion of the vena portæ and mesenteric veins was discovered, although in the two by Dr. Macfarlane, and in all the other inspections of which I have reports, this state of the portal vessels was apparent.

This disease, having continued for four months, has now happily almost disappeared; and perhaps no epidemic, so general and so severe, ever left so few traces of mortality behind it. From upwards of forty reports, afforded me by medical practitioners in all the different quarters of the city, I find that the gross amount of cases gives an average of only *one* death in *fifty*. Individual reports of course show various results, and if from these we were to estimate the different modes of treatment, the odds would be greatly against bleeding. This method, however, of estimating is not to be trusted, as many circumstances may concur to render the best treatment nugatory, and to furnish a long and heart-sickening list of unsuccessful cases. On the other hand, I am disposed to ascribe the very favourable termination of this disease to the use of calomel and opium; few cases were treated without mercury in one stage or another; and opium was given by all, as a *sine qua non* during almost every hour of the disease. There is besides every reason to suppose, that this epidemic was rendered far less fatal here than it otherwise might have been, in consequence of the judicious management of the sick poor by the appointment of district surgeons. We hold this to be a most humane and valuable institution, and one of the best and most economical methods of administering to the relief of the poor, and should like to see it placed on a more liberal footing. At present, although the disease was not considered contagious, we cannot calculate the amount of suffering the district surgeons may have saved the community, by their arduous, and unwearied, but ill-requited labours.

VIII. On the Epidemic Dysentery which prevailed in Autumn 1827. By JAMES BROWN, Member of the Faculty of Physicians and Surgeons of Glasgow.

TO THE EDITOR OF THE GLASGOW MEDICAL JOURNAL.

SIR,—In compliance with your request, I sit down to offer you a few remarks on the disease which prevailed lately in Glasgow, and which by universal medical consent has been named *dysentery*. From the limited time, within which I must furnish you with my remarks, I cannot pretend to give any thing like a regular paper on the subject. Nor is it in my power, in so short a space, to enter into the detail of such cases as came before me. I must content myself to give you the result of my experience in the disease in question, in the fewest possible words, noting down my thoughts as they arise, without much attention to method or order, and soliciting the indulgence of yourself and your readers for whatever may on that account appear to be less full, clear, or correct.

That your readers may be made aware of the exact extent of my opportunities of observation, I may mention, that I attended from the beginning, or a very early period of the disease, two cases commencing in July, three commencing in August, thirty-eight cases commencing in September, twenty commencing in October, three in November, and three in December, one of which last I have still under my care. Besides these, I saw two cases which had been attended previously by other medical gentlemen, and two where I was called in after, and attended along with others. These numbers amount to seventy-three, in five of which the disease proved fatal.

But the above statement would lead to an erroneous estimate of the mortality of the disease, as it really came under my notice; for I saw other fatal cases, although I cannot in fairness say that they came under any proper medical treatment. I was called to one case where the patient died six hours after my visit. The disease had been of a fortnight's standing, but he had had no medical attendant. Another patient died 36 hours after my first visit; also without any previous medical advice. He had been ill upwards of a week. A third died two days after my first visit, about the 21st day of the complaint. He had been seen once or twice by a medical person at the commencement of his complaint. A fourth, to whom I was called about the 11th day lingered six days. From the time that I saw him he vomited every thing. For the four last

days he had no pulse at the wrist. I was called to a fifth about the 14th day. The symptoms were, frequent vomiting, hiccup, jactitation, cold sweat, livid skin, and very frequent dark coloured bloody stools. All these cases occurred previously to the 7th of September, before much alarm about the disease had been excited in this quarter of the town, which may in some measure account for the late application to medical aid. It is needless to add, that in all of them the deed had been done before they came under my care.

As far as I have been able to ascertain, the complaint in question, generally commenced with a distinct feeling of chilliness, sometimes amounting to rigors. This was soon followed by griping pains, chiefly about the lower part of the belly, with a frequent desire to go to stool. Thirst generally came on early, and continued pretty constantly throughout the first 10 or 14 days of the disease; but for a day or two, there was seldom much heat of skin or acceleration of pulse. The one, however, increased in degree, and the other in frequency as the disease advanced, but not always in proportion to the violence of the other symptoms. In some cases, the skin could scarcely ever be said to be hot, and there were great varieties as to rapidity of pulse. Generally speaking, it was scarcely ever found hard, though sometimes strong, but more frequently soft and small. The skin was in some instances very hot. The tongue was seen of every variety, furred yellow, furred white, white and slimy, red and dry, glazed both white and red, and in one very lingering case, the tongue was nearly natural throughout the disease. The stools sometimes did not become slimy or bloody, although frequent, till the second, third, or even the fourth day; but in other instances, they were slimy or bloody, or both, from the first. It happened more than once, that a patient being first seized in the night, and having frequent calls to stool, thought nothing of it till in the morning, when, on seeing blood in the stool, he became alarmed and sent for his medical attendant. Some patients at the worst might have 6 stools in the 12 hours, others 6 in the hour, but the latter degree of frequency, seldom, if ever, continued through the 24 hours; yet such frequency in some instances occurred for two, three or four nights running for several hours during the night. There was generally a remission every 24 hours, during which there were fewer stools, and the patient was easier in every respect. This remission extended for the most part over one, two, or three hours, before and after mid-day, noon being the middle of the remission; but this was not always the case, for

in one case, a severe one, the patient had a distinct remission during 6 hours in the 24, 3 before, and 3 after midnight. In such cases as proved fatal, the stools continued very frequent and bloody to the end, so frequent perhaps as three and four every hour night and day. Vomiting, hiccup, and retention of urine, I reckoned bad symptoms. In four of the five fatal cases, there was much derangement and irritation of the stomach from the beginning. I had to use the catheter in two cases only; they proved both fatal. Of those cases that recovered, some were slight, and began to recover as early as the fourth, fifth, or sixth day of the disease, and even a few in which the symptoms at first were severe, were of equally short duration; but in the majority of cases the disease abated but little till from the 10th to the 14th day, the stools continuing bloody and slimy till about that time. The blood began to disappear from the stools at the latest about the 14th day, but in several instances, frequent stools, accompanied with pain and tenesmus continued for a week, and even longer after the blood had disappeared. These stools were sometimes slimy, sometimes bilious, sometimes fæculent, dark and very foetid. In two instances, they were for several days composed of matter exceedingly like pus, and the patients while voiding them complained of excessive pain, followed by faintness approaching to syncope. These two cases proved very lingering. In them alone could I detect any thing like scybala. I did not meet with a single case where there was any thing like acute pain on pressure. Often a dull bruised feeling was complained of when the left iliac region was pressed. This tenderness seldom extended to the right side of the belly, rarely ever to the middle. Where there was retention of urine, there was, of course, pain produced on pressing the region of the bladder.

I had not an opportunity of opening the bodies of any of those who died, consequently I have no title to make any remarks on the proximate cause of the disease. But I may be allowed to state, that from all that I have read or heard, I am inclined to think with those, who regard the proximate cause to be inflammation of the mucous membrane of the colon and rectum.

With respect to the treatment, I found no individual remedy at all to compare with opium. The disease cannot be treated without it. It may be given in various forms and in combination with various adjuncts. These may render it more acceptable to particular constitutions, more applicable to certain circumstances, and may tend to lessen or obviate

such inconveniences as are necessarily connected with its use; but it is to its soothing properties alone that we look for any thing like a cure in the disease under consideration.

I exhibited the opium frequently in combination with other medicines, but it was generally necessary to give to an adult, equivalent to from one to two grains of it every four, six, or eight hours, in proportion to the severity of the disease, and to continue to lessen or increase the dose accordingly. I imagined the solid opium produced more permanent effect, with less disturbance to the system than laudanum, but where the pain before, at, and after passing the stools, was very acute, the laudanum given on the instant produced more immediate relief.

I found anodyne injections composed of one ounce of thin starch, with 30, 40, or even 60 drops of laudanum, of great benefit. The larger quantity generally answered best in every respect. Some patients, however, had so much tenderness of the rectum, that they could never retain these injections so as to derive any benefit from them. Would the *vinum opii* in such cases have answered better? Large emollient injections of gruel, thin starch, or warm water, proved very serviceable both in evacuating and soothing the bowels.

Purgatives I found necessary once in the two or three days. Without these the patients seldom if ever passed any fæces. The one most frequently used after the commencement was castor oil. By means of it, I generally succeeded in bringing down one or two stools, wholly or partly fæculent without much disturbance to the system. Finding the castor oil answer, I had no inducement to change. From what I have heard, I am inclined to believe that salts would answer in some cases equally well.

As to calomel, there may, in prescribing it, be three objects in view. It may be used to act as a purgative, to lessen the heating or sickening effects of opium, or to mercurialize the system. At the very commencement of the disease, after having prescribed the warm-hip bath, I frequently gave a powder at bedtime, composed of calomel and opium, which, besides soothing the patient through the night, operated as a purge in the morning, seldom failing to bring away pretty copious foetid or bilious stools. I the more readily gave a mercurial purge at the commencement of the complaint, because there was in most cases considerable biliary derangement, which I conceive the calomel is calculated to abate; but when in several instances I attempted the same thing at a farther advanced stage of the disease, I found the operation

of the calomel severe and distressing, and apt to increase the tenesmus and the frequency of the bloody stools.

In a good many instances I continued the use of the calomel along with the opium, for a couple of days or so at the commencement of the disease, in doses of from two to three grains of the former, with from one to two grains of the latter, every four, six, or eight hours, according to circumstances, and finding it to answer well by soothing the patient and lessening the frequency of the stools, and to produce no mercurial effect upon the system, I was imboldened to use it even for a longer period than that mentioned above, and still without producing any soreness of the mouth. This was in the latter end of August and beginning of September. But as September advanced, I found that the mouths of several patients became affected with the mercury, two of them severely, and that after the exhibition of much less calomel than had been administered without any such effect in the previously treated cases. After this I became more cautious in my administration of calomel.

As to the use of calomel as a mercurial, I never exhibited it for that purpose. In all those cases under my care, where the system became accidentally affected, the disease was more protracted. In two of them there occurred a long continued purging of thin bilious stools, almost as troublesome as the original complaint. In another, excessive griping, with frequent green stools, continued through the fourth and part of the fifth week of the disease, which disappeared when the mouth began to heal. Sarsaparilla was in this case productive of so much, and so decided a relief, that the patient, an ignorant woman, blamed me very much for not having given her that medicine in the first instance. In the case of a delicate female who had used four of the above-mentioned doses of calomel and opium, and who was cured, and whom I had ceased to attend, the mercury began some days afterwards to affect her, and she had a very sore mouth. Of one gentleman who had recently recovered from a severe mercurial course upon which he had been injudiciously put by one of our advertising quacks, the case was the most tedious except one of all those that I attended. By the by, I dare say, there was one other case about equally tedious. This latter had calomel pretty copiously. He was much benefited at last by the copious use of linseed tea. Upon the whole I am inclined to think, even independent of a sore mouth and the bilious purging mentioned above, that where the constitution was materially affected, the mercurial influence was usually hurtful. If affecting the system should hereafter be shown to be

useful, I should think the blue pill a better agent for that purpose than calomel. In a case still under my care which has been very lingering, and in which latterly there occurred, pain in the epigastrium, accompanied with a very harsh skin and a dry red tongue, very great benefit has accrued from the use of a powder composed of three grains of blue pill mass, and one grain of opium exhibited every night at bedtime, for five nights running. The use of these powders was premised by the application of twelve leeches to the pit of the stomach, and followed up by two doses of castor oil. The tongue and skin are now natural, and the pulse which was 104 and wiry, is now 72 and natural. Only one stool last night and that one natural.

Of ipecacuanha, either as conjoined with opium, or as given alone, I can say very little. I should think favourably of it where the stomach is able to bear it, as being calculated to lessen the heating effects of opium, and to soften the skin. In two cases where I tried it, in doses so small as half a grain combined with a grain of opium, it was almost immediately rejected.

I applied blisters frequently, sometimes covering the whole abdomen, I cannot say to any decided good purpose. I applied them to the epigastrium for hiccup and vomiting, to the left iliac region for a dull pain very frequently felt there on the application of pressure, but I found vomiting more readily relieved by opium pills, hiccup by large doses of laudanum, and the dull pain in question by the application of leeches. I applied the leeches frequently to the abdomen, but the most effectual mode of applying them, was round the anus. From 8 to 12 applied there never failed to relieve the pain in the colon and rectum, and greatly lessened the tenesmus; this latter effect was more decided where the patient had a feeling of fulness in the rectum, as if it contained a large stool, or a foreign body which could not be ejected; of this feeling, by the by, few patients complained unless questioned.

As to general blood-letting, I scarcely think it so applicable as a curative process to inflammation of mucous, as to inflammation of serous membranes. Of course I except croup. I have never seen any benefit arise from this remedy in catarrh, gonorrhœa, or catarrhus vesicæ; I may add, mucopurulent inflammation of the conjunctiva: except in so far as it was necessary to abate violent, general, arterial action. When I used the lancet in dysentery, it was on these principles. I found occasion for it only in three cases. Two were fatal. The third, a robust man, lingered long and

required the copious use of cordials early in the disease. Except in that case, and in the fatal cases when sinking, I had upon the whole very little use for cordials.

Absorbent mixtures, effervescing draughts, and Sedlitz powders, I found useful in their proper places; and not to be neglected in the due treatment of the disease. I found suppositories likewise of service. I never tried any sort of astringent.

To conclude my remarks on the treatment, as long as the patient's strength would permit, the warm hip-bath never failed to give immediate and decided relief. Patients, not unfrequently, dated the commencement of their recovery from the use of it. It often brought sleep, as well as mitigation of the pain, and helped materially to soften the skin. I found a common tub answer perfectly well, directing the patient to sit down in the tub, and not to put his feet in. When the strength was too much reduced for the bath, I ordered warm fomentations, but these were so seldom well managed, that I am not sure if they did much good.

I have been frequently interrogated as to the exciting cause of this complaint. It has created much speculation in the non-medical public, and a few words regarding it may not be amiss even in your pages. I have no knowledge as to what the medical opinion is on this point, but my own is, that the exciting cause is cold, occurring in the following way. There has been more wet weather during the last twelvemonths than has occurred for very many years. All last summer there scarcely was one dry day. I speak of course of the weather as it occurred at Glasgow. The summer, it is true, was far from being unpleasant, the rain seldom continued long at a time, but still the season was decidedly a wet one, and the street, and at all events the ground, was seldom, if ever, dry. The luxuriant growth of trees, the heavy and abundant crops of fruit and grain of all kinds, sufficiently prove—that neither sap nor heat were wanting. There was moisture throughout, in August especially there was heat—and there was a signal absence of wind. I speak from memory, but I am of opinion, that of such wind as we had, there was more of it from the east than is usual for the season. But at all events, every one who paid any attention to his sensations must have observed, that when he had occasion to walk much, he felt the weather exceedingly sultry and oppressive, causing him to perspire on very slight occasion; and that when he sat long in his counting-house or parlour, he felt more unreasonably cold than he could account for. These feelings, I apprehend, arose from the conducting power of damp streets, damp walls, damp furniture, damp

clothes, and a damp atmosphere, carrying away the heat suddenly after the body had been heated to a semiper-spiring state by exercise in a warm still atmosphere: that atmosphere too rendered more oppressive, by its inability sufficiently to carry off the insensible exhalations of the body, arising from its being loaded with moisture. The frequent heats and chills to which every one is thus shown to have been liable, must have given rise to many colds, and these engrafted upon the usual disease of the season—bowel complaint—explains why dysentery in preference to other inflammatory complaints was the result. In short, for six months back, we have been breathing the atmosphere of the Netherlands, and we have had a taste of the Belgic diseases. The one in question coincides in many points with the dysentery described by Sir John Pringle, as occurring in the British army when on the Continent, in the beginning of the last century; and besides, I have seen two distinct cases of ague occurring in natives of this country who never had any such disease at any former period of their lives, one of whom was never out of this country, and the other never in an ague country. I have never seen a case of ague occurring here under similar circumstances at any former period of my practice.

I intended to have spoken of the infectious, or non-infectious nature of the disease, and to have stated the grounds of my opinion for thinking that it is not infectious. I meant also to have stated some particulars respecting every case which I attended, which would have shown, that 37 out of the 73 patients resided on the level of the ground in damp situations, and that 12 others had employments exposing them much to damp. But I must conclude, on this letter, which has swelled so unaccountably on my hand, will be too long for insertion in your Journal. I am, my dear Sir, yours very truly,

JAMES BROWN.

Anderston Walk, 25th December, 1827.

IX. *Observations on Putrid Animal Effluvia, and on the utility of the Chloride of Lime in destroying their Fætor.* By WILLIAM DAVIDSON, Surgeon, Glasgow.

No philosopher has, as yet, determined what that principle is, which, during life, prevents the chemical decomposition of animal bodies; and though numerous theories have been formed respecting its nature, all that has hitherto been discovered, is its origin in the nervous system, and its analogy in

some points, to galvanism or electricity. No department of chemistry has undergone less investigation than the spontaneous decomposition of animal substances; on the one hand there is the difficulty of collecting the gaseous products, and on the other the disgusting and dangerous effluvia which issue from large masses of putrefying matter. The slow or rapid decomposition of animal fibre depends much upon its state previous to the extinction of life. If the animal has previously been in good health, and if the fibre be strong and rigid, then putrefaction is slow; if on the other hand, the fibre be weak and lax, or if the animal has been worn out by disease or excessive fatigue, then it is proportionally more rapid. In a case of *purpura hæmorrhagica*, (where the individual had been excessively emaciated by several chronic diseases) animal putrefaction seemed to commence the moment of dissolution; and on inspection twenty hours after death, the heart and parenchymatous viscera were studded with vesications, filled with gas, evidently disengaged by the putrefactive process. As putrid animal effluvia cannot be collected in any vessels, of which we are at present possessed, no analysis can be made to ascertain whether they contain the usual constituents of animal substances. That they are not essential to the physical qualities of animal bodies, or of any substance derived from animal decomposition, may be deduced from the following circumstances; viz. that the carbonic and ammoniacal gases which result from putrefaction are not essentially fœtid; and that this fœtid property can be neutralised in many bodies without altering, apparently, their physical qualities. In order to prove this position, I will mention an experiment which was performed in July 1826. Several gallons of putrid whale oil were submitted to the action of chloride of lime, (previously dissolved in water) and then the lime was completely separated by sulphuric acid, assisted by gentle ebullition for a short time. The oil after this operation was thoroughly deprived of its putrid odour, and in a day or two it seemed to possess all its former qualities except putridity.

It is an opinion entertained by many medical men, that the fœtor of intestinal gases depends upon the presence of sulphuretted hydrogen. Now, though it had not been proven by analysis, that sulphuretted hydrogen is seldom found a constituent of these gases, yet analogy would lead us to conclude that their fœtor depended solely upon the presence of putrid effluvia. For, if a portion of excrementitious matter be mixed with a solution of chloride of lime, the fœtor is instantly destroyed, in the same way as it would be, if the solution were applied to a

sphacelating ulcer, or mixed with putrid oil. That putrid effluvia are totally different from contagious miasmata, is very evident; because the first can, with great facility, be detected by our senses, and exist in bodies which have no infectious properties; whereas the existence of the latter can only be inferred from inductive reasoning. And it is a begging of the question to maintain, that because chloride of lime destroys putrid effluvia, it must therefore necessarily destroy contagious effluvia, because both exist at the same time in the same animal body. It may be true that the chloride of lime can destroy contagious effluvia; but till it be demonstrated by rigid experiments and observations, we have no right to draw conclusions from such vague and unphilosophical analogies.

There is no substance which destroys putrid effluvia so thoroughly as chlorine, or its compounds. Chloride of lime was first used in France, for this purpose, which certainly forms not one of the least important applications of this extraordinary compound.

The following account is an abstract of a few cases in which the chloride of lime has been used:—J. S. has been effected with cough and expectoration for about six years, and is considerably emaciated. On the 26th October, 1826, he was affected with sloughy ulcerations in his gums, which emitted a very fœtid odour. A gargle was prescribed, in the proportion of two grains of chloride of lime to an ounce of water. This, used occasionally, kept the fœtor in check, and the ulcerations cicatrized in about eight days. 2d. Mrs. C. in November, 1826, used mercury for a hepatic and dropsical affection, to the extent of copious salivation. A gargle, in the proportion of two grains of chloride of lime to an ounce of water, was used; which produced considerable smarting. It was afterwards reduced in strength, and a portion of refined sugar was added, which removed in a great measure its harsh taste. It was continued for a fortnight, and when used frequently, always had the effect of moderating the fœtor. The same treatment has been adopted uniformly in all other similar cases, and with similar effects. 3d. Mr. M. was affected in December, 1826, with diarrhœa; fæces dark and very fœtid. One teaspoonful of chloride of lime was ordered to be dissolved in about sixteen ounces of cold water; and the fæces to be discharged into the solution. He used it in this way for ten days, and affirmed, that in all cases it had the desired effect of destroying the fœtor. This plan has been adopted in a variety of cases, during the late dysenteric epidemic, and in several cases of fever. 4th. A boy about

twelve years of age has expectorated about four ounces of pus every day for three or four years.' It seems to be discharged from a cavity in the right side of the chest; for the sound emitted on percussion is very dull in that situation. He expectorates the whole of the pus in a few minutes, and it occasions a very disagreeable fœtor in the apartment. But by discharging it into a strong solution of chloride of lime, and afterwards gargling his mouth with a similar solution, much of the disagreeable fœtor is destroyed. 5th. A blacksmith in November, 1826, received an injury on one of the joints of a finger, which produced extensive and fœtid suppuration of the joint. The fœtor was completely destroyed by moistening the dressings, (before they were removed,) with a solution of chloride of lime, in the proportion of two grains of the salt to one ounce of water. 6th. Mrs. V. was delivered in February last of her first child. The labour was very tedious, and there was high excitement during the latter stages. On the third day after delivery, she was affected with fixed pain in the uterine region, and very fœtid lochial discharge. A solution of about two grains of chloride of lime to an ounce of water, was ordered to be injected into the vagina, two or three times a day. This treatment removed the disagreeable odour; and she completely recovered in about ten days. 7th. Mr. M. whose breath is naturally fœtid, was directed to gargle his mouth and brush his teeth with a solution of chloride of lime, in the proportion of four grains of the salt to an ounce of water, with the addition of a small portion of refined sugar. It had the effect of removing the fœtor of the sordes which accumulated about his teeth. 8th. J. L. died of diseased liver and dropsical effusion into the abdomen. On laying open the abdominal cavity, a very fœtid odour made its escape; and adhered very tenaciously to the hands. After the dissection was finished, they were thoroughly moistened with a solution of chloride of lime, in the proportion of about six grains of the salt to an ounce of water, and afterwards washed with soap and water. To medical men, this is an important application; for after dissections, the fœtor often adheres to the hands, most tenaciously, for many hours. A solution of a similar strength was poured upon the body, and the clothes in which it was wrapped were also moistened.

From many sources of evidence, it may be now maintained, without the fear of contradiction, that the utility of the chloride of lime, for destroying putrid effluvia, is certain and unquestionable, and that it may be applied, in many instances, for destroying the nuisances, and increasing the comforts of the human race. Our hospitals and charitable

institutions claim our first attention upon this subject, chiefly on account of the condensed mass of misery accumulated there; but also because they are the places in which is exhibited all that is new in medical discovery. It may be argued, that our hospitals are now so well ventilated, and, that fæculent matter is now so rapidly removed by recent contrivances, that there is no need of any other means for destroying fœtid effluvia. But can these means get rid of the putrid effluvia of a bedridden patient affected with diarrhœa; or can it remove the overpowering fœtor which arises from extensive injuries, or sphacelating ulcers? No ventilation can rapidly remove this, and it must therefore make its escape slowly and gradually. A solution of about one part of chloride of lime to one hundred parts of water, should be freely supplied to all the inmates who are confined to bed. The dressings of all putrid ulcers should be immersed in a weak solution, the moment they are removed, which would not only prevent their exhalations spreading in the apartment, but would also make the cleansing of them less disagreeable. In private practice, especially among the middle and lower orders, this substance is even more necessary: because in fever and diarrhœa, they frequently have no opportunity of throwing out the excrementitious matter. In ptyalism, it is frequently of great consequence to many a young man, to remove the fœtor of his breath, and to prevent the consequent discovery of his disease; and even where there is no reason for concealing the use of mercury, how agreeable to the feelings of the attendants would be the neutralization of such offensive putridity! For destroying the fœtor of dead bodies in warm weather, this substance cannot be dispensed with; and every medical practitioner ought strongly to recommend it: for its application to domestic comfort is at present in its infancy, and it is only by the influence of medical men that it can ever be introduced.

X. *On Auscultation and Percussion.*

THE observations of the French pathologists on what may be called the physical signs of diseases of the chest, in contradistinction to their functional symptoms, have opened up a new and extensive field of inquiry. Though interesting both in a scientific and in a practical view, this field has been but too much neglected by our countrymen. We are anxious to awaken them more fully to its importance, and the recent

publication of a new edition of Laennec's great work* gives us a good opportunity of attempting to do so.

The first edition, which appeared in 1819, contained the results of many years' minute inquiry into the pathology of the chest, and of three years' application to the study of auscultation. In 1821, we believe, the new mode of examination began to attract attention in this city. Though, at first, suspected, ridiculed, and sometimes abused as a piece of pompous quackery, it has gradually gained ground in the estimation of medical men. We no longer hear the stethoscope compared to the divining rod, nor allusion made to the gifted ear, which could hear the grass growing at a league's distance. They who formerly scoffed, would now be ashamed to acknowledge the ignorance in which they then gloried.

To the progress of auscultation, much less danger is to be apprehended from open opposition, than from the occasional mistakes of those, who, though possessed of little experience, assume the tone of confidence and decision. He who has studied the subject most completely, will be the most fully convinced of the soundness of Laennec's doctrines, and of the utility of his instrument. But he will also be the most careful to guard against illusion, and the first to admit, that, to apply with certainty the more minute observations, and to recognise in practice the more delicate distinctions of that distinguished pathologist, would require experience equal to his, and the same patient improvement of the opportunities which that experience gave him. We are so fully convinced of the utility of auscultation, that we should blame ourselves did we omit it in any obscure or difficult case. But we despair of ever attaining the power of making many of the observations which become easy to such men as Laennec and Andral, with all the facilities which Parisian hospitals afford.

It is difficult for practitioners in this country to acquire such a perfect familiarity with the stethoscope. But there are many phenomena which all may recognise after a few trials, and these, fortunately, belong to the most frequent and the most curable, and therefore the most important diseases. We do not say that it is always safe to trust to the results of auscultation alone. No such doctrine is advanced by Laennec. In many diseases, the functional lesions must be taken into account: in not a few, we require the additional aid of percussion. This last mode of diagnosis, proposed by Auen-

* *Traité de l'Auscultation médiate et des Maladies des Poumons et du Cœur.* Seconde édition, entièrement refondue. 2 tomes. 8vo. Paris, 1826.

brugger,* in 1760, and brought into notice, in France, about forty years after, by Corvisart, appears to have been little regarded in this country before the introduction of Laennec's work, as we may gather from the standard treatises on pulmonary diseases.

By the combination of auscultation and percussion, the French pathologists have been enabled to lay down minutely the signs of almost every disease of the thorax, in all its stages. They have proved, by numerous dissections, the dependance of these signs on the different states of the organs. In the cases which they have detailed, we find the seat and extent of pneumonia, for example, the existence and nature of different complications, and the tendency of these to increase or to subside, determined with a precision unattainable, we believe, by the most experienced observer of ordinary symptoms. He who denies the utility of thus minutely watching the progress of diseases, must be ignorant of the important improvements which have resulted, from similar minute observation of the diseases of the eye. He who ridicules a physician for having recourse to percussion or to the stethoscope, must be prepared to ridicule, equally, the oculist, who examines the deep seated parts of the eye, by the concentrated light thrown upon them by the lens, or who applies belladonna to enlarge the field of view. The slightest acquaintance with the physiology of the thorax, and with the doctrines of sound, will serve to explain the rationale of the different signs, on which Laennec relies.

If any still doubt of the value of Laennec's instrument, they will find in his work its most complete vindication. Every page proves the cautious spirit of induction, which regulated his investigations, and shows that his recommendation of the stethoscope arose, less from the partiality of an inventor, than from the deliberate approval of a candid inquirer. None will dare to deny that he has produced the most complete treatise on diseases of the chest, which exists in any language, and surely that which enabled him to do so, must be an instrument of distinguished utility.

They are very much mistaken who suppose Laennec's book to contain merely the description and panegyric of his new diagnosis. Nowhere, have we seen more complete histories of the symptoms, progress, causes, complications, and modes of termination of the different diseases, except, perhaps, in the

* *Inventum Novum ex Percussione Thoracis Humani ut Signo abstrusos interni Pectoris Morbos detegendi.* Vienna, 1761.

admirable work of M. Andral.* Were we required to select an almost perfect model of medical description, we should refer to the account of Pneumonia by that gentleman, whom Laennec justly pronounces one of the fairest hopes of the Parisian school. With the practice of both these authors, it must be confessed that a British reader is apt to be disappointed. Laennec, in particular, discusses the therapeutical part of his subject briefly enough. We have heard this urged as a defect in his book for which nothing else can compensate. We think otherwise. There are few complaints for which we have not remedies enough and to spare. The imperfection of therapeutics arises much less from want of means to combat diseases, than from inability to distinguish the cases to which each remedy is applicable. Hence, chiefly, it is, that the first proposer of a plan of cure often obtains a success which all others seek in vain. He who enables us to discriminate accurately different morbid actions, diseases seated in different but contiguous textures, or depending on different organic changes in the same texture, enables us to act on rational principles where we merely guessed before, and to be decided where we formerly groped our way. Dr. Duncan senior conferred on us no ordinary obligation, by attracting our notice to the various forms of disease that produce the symptoms of pulmonary consumption. Laennec has done still more, by his more accurate pathology, and his additional means of diagnosis.

In the first edition of his work, his principal object was to render his new views generally known. Accordingly, the signs discovered by auscultation formed the subjects of the different divisions, in which were classed the diseases which these signs respectively indicate. In the second edition, this plan has been entirely changed. The work has been rendered so much more distinct and systematic, that its value is greatly increased, independently of its containing the results of the author's latest experience, and the first account of his practice.

It is divided into two parts, of which the first treats of diseases of the lungs, the second of those of the organs of circulation. In the former, which is much the longer, he considers the diseases of the bronchial tubes, of the substance of the lungs, and of the pleura, including the inflammations of these parts, their functional derangements, and the morbid

* Clinique Médicale ou Choix d'Observations recueillies à la Clinique de M. Lerminier, et publiées sous ses yeux par G. Andral fils. Deuxième et troisième parties; Maladies de poitrine. Paris, 1824—1826.

textures that are occasionally developed in them. This part is preceded by a full account of the auscultation of the lungs, and a history of his discovery, or rather invention, of the stethoscope.

The second part occupies little more than half of the second volume. In it, he gives an account of the auscultation of the heart, of the diseases of that organ, of the pericardium, and of the great vessels. It is obvious that his hopes of attaining certainty in the diagnosis of heart-diseases had diminished with his increasing experience. Certain signs which, in his first edition, he represented as characteristic of particular lesions, are spoken of, in his second, with more hesitation. We rather anticipated this result, and we fear that not a few diseases of the pericardium, of the heart itself, and particularly of its valves, must ever continue to be guessed at, rather than confidently determined. We fully concur in Laennec's admonition, that to examine these parts requires much more care, much greater experience and dexterity, than are necessary in exploring the lungs.

The notice we have given of the contents of these volumes must show the impracticability of a regular analysis. We shall, therefore, confine ourselves to some observations upon a few of the points that appear to us particularly important, or on which Laennec differs from other authorities, and especially from M. Andral. Of the volumes of this author we have previously a few words to say.

M. Andral's work is, strictly, what it professes to be, a series of clinical reports. His method is, to give histories of a number of cases of each disease, so selected as to show its usual course, its occasional deviations from that course, and the changes produced by differences of constitution, and by complication with other diseases. In this manner he discusses, in his second volume,* the different forms of bronchitis, of peripneumony, and of pleurisy. In the case of these last two diseases, he has added a sketch of the general history, after concluding his detail of individual examples. To each case he has, besides, annexed such remarks as its peculiar features suggest. These observations, and the general summaries, are the most interesting parts of the work. The third volume consists chiefly of the history of phthisis, and of some affections of the heart. It contains his peculiar opinions of the nature of tubercles, and a most minute account of their symptoms and supposed causes. In a neatly written preface, he has given a general view of his plan, together with some very

* The first treats of idiopathic fevers.

correct observations on the value and object of morbid anatomy. He points out the uncertainty of changes of colour, as indications of previous disease, when these changes are not accompanied by alterations of structure; and exposes the too common error, of forgetting that morbid actions may exist, during life, of which no traces can be discovered in our dissections.

In preparing his work, Andral studiously avoided all intercourse with Laennec and his pupils. He confined himself entirely to his own observations in the wards of La Charité. He therefore remained ignorant of some new facts, and some modified opinions, which Laennec began to communicate, orally, even before his first edition had finally issued from the press, though they have appeared in print, for the first time, in his second. Laennec complains, with some asperity, of the injustice of Andral's referring to his opinions, without ascertaining the changes in these opinions, which had been publicly avowed in his clinical lectures; but for us it is fortunate, that we have two able inquirers thus pursuing the same object by different routes. The close coincidence of the results which they have obtained confirms their accuracy, and the few and comparatively unimportant differences between them increase our confidence, by proving their independence of each other.

The work of M. Collin* is a mere manual. His object is to give an account of the different signs of diseases of the chest, with the pathological deductions to be made from each. His arrangement is therefore similar in principle to Laennec's first. His style is very perspicuous, and his book exceedingly well fitted to communicate a compendious knowledge of auscultation, and to enable the student to recall and arrange the information which he has collected from the larger treatises. A translation has been published by Dr. Ryland, a graduate, if we do not mistake, of this university.

The translations by Dr. Forbes seem to be executed with judgment and accuracy. He improved the first edition of Laennec's treatise by a more convenient arrangement, and by considerable condensation. Of his more original volume† we are also disposed to speak favourably. The translation of Auenbrugger's tract, contained in it, has made more familiar

* *Des diverses Méthodes d'Exploration de la Poitrine, et de leur application au Diagnostic de ses Maladies.* Paris, 1824.

† Original cases, with dissections and observations, illustrating the use of the stethoscope in the diagnosis of diseases of the chest; also, Commentaries on the same subject, selected and translated from Auenbrugger, Corvisart, Laennec, and others. London, 1824.

to the English reader a series of observations which had long remained in undeserved obscurity. Auenbrugger's method of diagnosis was the greatest improvement introduced previous to Laennec's. Some of his pathological remarks are highly creditable to him, and are evidently the results of much careful observation. Corvisart has, in our opinion, encumbered rather than improved the book by a commentary, many times more bulky than the text to which it belongs. What is obscure in the original, he has left at least equally so. His pathology is little less humoral than that of Auenbrugger, and all his interesting observations have been condensed, by Dr. Forbes, into the compass of a few pages.

Dr. Forbes' own cases may prove useful, by familiarizing British physicians to the use of auscultation. We have so much national feeling, even in matters of science, that an opinion advanced by a foreigner, however eminent, gains additional certainty, in our eyes, when sanctioned by the testimony of a countryman of our own. Dr. Forbes' work is a testimony of this kind, of no ordinary value. Laennec refers to it in terms of approbation, and quotes Dr. Forbes' authority to prove the possibility of some of his own most delicate observations. We think this no common honour, and would deem it presumptuous to add praise of ours.

The work of Dr. Stokes,* in its object and in its plan, resembles M. Collin's book more nearly, we think, than the preface seems to admit. It is by no means equal to the French manual. New matter it contains none. It can only pretend to the merit of being a convenient abstract of all that was known at the time of its publication.

To return to Laennec and Andral. We may notice a difference of opinion between them, on the propriety of denoting the condition of the lung, in the latter stages of acute inflammation, by the term *hepatization*, which Laennec has adopted from preceding pathologists. Andral observes, that the lung, like other parenchymatous viscera, becomes softer when inflamed acutely, and is truly indurated only when the affection approaches the chronic form. We think Laennec has failed in the defence which he has attempted. Andral proposes to denote the second degree of acute peripneumony by the phrase *ramolissement rouge*, and to apply that of *ramolissement gris* to the third stage, or that of imperfect suppuration. Though, in both these states, the cut surface of the lung

* An Introduction to the Use of the Stethoscope, with its application to the diagnosis in the diseases of the thoracic viscera, including the pathology of these various affections. Edin. 1825.

seems, to the eye, to be of the density of liver, the touch at once discovers that there is present no corresponding firmness. *Induration rouge*, and *induration grise*, Andral would use to denote the occasional effects of chronic pneumonia. We can see but one valid objection to these appellations, which is, that the latter is, at least, equally descriptive of the state produced by infiltration with the matter of tubercles.

Both these authors give us much information as to the comparative frequency of *pneumonia* in the right and in the left lung, and in the upper and the lower lobes—on the periods of termination in different circumstances—and on other points of equal interest. Chronic pneumonia they show to be exceedingly rare as a purely idiopathic disease, though not unfrequent as a secondary affection around tubercles. It would appear that the inflammation is much less common in the superior than in the inferior lobes, but more fatal, and more rapid in its progress.

Andral, in particular, points out the modifications which the disease exhibits in children and in old persons. He advises bleeding, at every age, and in all circumstances, when the intensity of the disease demands it. His bleedings are small, and frequently repeated. His reports clearly prove that these scanty evacuations of blood are less effectual in subduing the disease, and not less destructive to the strength, than the more copious depletion at the outset, to which our countrymen have recourse. It is remarkable that Andral, who talks of sixteen ounces as a profuse venesection, gives as a *laxative* two ounces of castor oil. So great is the influence of prepossession in medical practice.

It is a common opinion, that *effusion* follows the decline of inflammation of the pleura. Every one who carefully weighs the body of evidence which Laennec and Andral have adduced, will, we think, be convinced that it takes place early in the disease, in almost every instance. Under the name of dry pleurisy, Andral gives some cases in which false membranes were found on dissection, but no liquid. Laennec has examined these cases. He points out the fallacy that may arise from the occasional rapidity of absorption: he shows, that in all the instances the pleurisy was slight, and that in the greater number it had supervened towards the termination of a more severe pneumonia. The effusion often remains long after the pain and the acute fever have disappeared, sometimes without sensibly injuring the health; sometimes producing symptoms resembling those of tubercular phthisis. Laennec gives a striking case, in which a cure was effected by paracentesis, after the patient had been abandoned as hopelessly

consumptive. He lived many months, and died from the effects of a gross debauch. To ascertain this continuance of effusion, and to watch its increase or diminution, is a power which is given us by percussion and auscultation only. The French physicians confine the use of blisters to this stage of the disease. This practice nearly coincides with the approved rule among ourselves, never to apply blisters till bleeding has been carried as far as the case seems to require or to admit.

Another important observation of the French pathologists occurs to our recollection; the frequency of some degree of *pleurisy* in cases of *peripneumony*, and the comparative rarity of *pneumonia* when *pleurisy* is the primary disease. The secondary pleurisy seldom causes much effusion: indeed if a considerable portion of lung has become hepatized, much effusion is impossible. The inflammation of the membrane is the cause of the acute pain that is often present. It adds little, in general, to the danger of the patient.

From the rarity of inflammation of the parenchyma of the lungs, complicating that of the pleura, an important consequence follows; the possibility of the lung recovering its volume, when the fluid has been withdrawn, by which it was compressed. When the effusion has been rapid and copious, the lung is found flattened upon the side of the spine. It contains no air; but it may be easily inflated. Consequently, paracentesis would have a fair chance of success, in such a case, if the inflammation could be so far subdued as to prevent the risk of a fresh effusion. The only obstacle, to the expansion of the lung, is its being bound down by strong false membranes. This unfavourable state becomes the more probable, the longer the disease continues. The operation is therefore least likely to succeed in cases that approach the chronic form. Laennec thinks that dense semicartilaginous coatings occur more frequently when blood forms part of the effused liquid. To these he has attributed the contraction of the chest, which he had found most common after these bloody effusions.

It was in these inflammations, and particularly in peripneumony, that Laennec used his large doses of *tartar emetic*. He usually premised a moderate bleeding; he then administered a grain of the medicine, every two hours, during the first day, increasing the doses afterwards to two grains, if it seemed necessary. His object was not evacuation. The patient was, therefore, kept in ignorance of the nature of the remedy, each dose of which was administered in two ounces of some cold aromatic infusion. Some vomiting and purging usually occurred the first day. If these continued, a preparation of opium was added as a corrigent. When the medicine was

best tolerated, that is, when its effects were the least sensible, its influence was expected to be most beneficial. Laennec adopted this practice before he became acquainted with the doctrines of Rasori, to which he is decidedly hostile. In proof of its efficacy he quotes the results of his own practice, and of that of some of his disciples. By some latitude of explanation, he reduces the mortality to about one in 13. The common proportion in the hands of the unenlightened, he calculates at one in six, or one in eight. Both these rates we think are too high. We have seen tartar emetic decidedly beneficial in acute rheumatism, and in some other diseases, but it was always so given as to act on the stomach, the bowels, or the skin. We should hesitate to venture on Laennec's doses, convinced as we are of the dangerous nature of the preparation, when incautiously used.

Much practical advantage may be derived from auscultation, in the diseases comprehended under the name of *Asthma*, and we look for considerable improvement in their pathological history, from future observations. Diseases of the heart and great vessels, various species of bronchial inflammation, particularly the dry and the pituitous catarrhs of Laennec, organic changes in the bronchial branches, emphysema of the lungs, these we look upon as the most common causes of asthma. But cases occur in which no unnatural sound can be detected by auscultation, or by percussion. Such cases have proved fatal, and no lesion of the heart or lungs has been found. They are strictly entitled to the name of Spasmodic Asthma. Laennec and Andral both admit the existence of such a disease, and the former adopts the opinion of Reisseisen, that the air tubes are furnished with contractile fibres. His theory of the affection is, therefore, very similar to that contained in the writings of Cullen.

He speaks of another form of dyspnœa, not yet traced to any structural derangement. It is characterized by "puerile" respiration, denoting a very full dilatation of the air cells, and the free passage of the air into them. He explains it, by supposing a permanent or occasional increase of what he calls the "*besoin de respirer*," which cannot be satisfied by the usual degree of respiration. In diminishing this "*besoin*," fully more than in relaxing spasm, consists, he thinks, the salutary action of narcotics, in this, and many other pulmonary affections. All, whose respiration is of the puerile character, are more easily rendered breathless than those who require the function in less energy. No effort of the will can give to the respiration of an adult, the puerile character. On the contrary, it regains this character, involuntarily, in whatever por-

tions of lung remain unimplicated in severe pneumonia. In a forced inspiration, however deep, the "murmur" is faint or inaudible. It is often exceedingly strong when one inspires involuntarily, after forcibly holding his breath, though the expansion of the chest is scarcely observable. These and other facts, lead our author to conclude, that the lung is in some degree active in inspiration; and that on the condition of its own nervous (or moving) power depends, in part, the degree to which it shall be expanded.

Laennec has treated of all the varieties of inflammation in the mucous membrane of the bronchi, from simple catarrh, to hooping-cough and croup. His histories of these diseases, conjoined with Andral's valuable observations, leave little to be desired. As for the treatment, he speaks very highly of the utility of emetics in full doses, and frequently repeated, and advises them even in the catarrh of old persons, when severe. For attenuating the sputa, and facilitating expectoration, he recommends alkalis in large quantities, an old prescription for *cutting phlegm*.

We may here notice the valuable observations of Andral, on the characters of the *expectoration*. They differ very widely from the old attempts to distinguish between pus and mucus, by tests, many of them troublesome and all fallacious. These attempts have lost their interest, since it has been proved that the matter expectorated, in all diseases, is chiefly the secretion of the bronchial tubes: and that genuine ulcers of the lungs, which it was the object to discover, are among the rarest of pulmonary diseases.

The characters by which Andral distinguishes the sputa in the different forms and stages of bronchitis, and pneumonia, are easily recognisable, and are proved to be almost invariable. Thus, he tells us that, in the beginning of pneumonia, there is no expectoration, or only of a little transparent mucus. Towards the second or third day, the sputa, still transparent, assume a rusty brown colour, and a remarkable viscosity, which is proportioned to the violence of the inflammation. These sputa are supposed to characterize hepatization. The peculiar colour depends upon the intimate mixture of a certain quantity of blood, and varies as this quantity is greater or smaller. When purulent softening occurs, the viscosity diminishes, the expectorated matter sometimes becomes entirely puriform, and sometimes liquid and dark coloured. In gangrene of the lung, it is exceedingly fœtid.

Tubercles, when numerous and miliary, sometimes cause the glairy expectoration of the *pituitous* catarrh. Fragments of tubercular matter have been found among the sputa, but

rarely: White granules from the tonsils, have been often mistaken for them. These may be known by their leaving a greasy stain upon paper, which genuine tubercular substance does not. The sputa in phthisis are very variable in appearance. We believe that they afford no certain characteristic of the disease, though they are valuable aids in conjunction with the other signs.

Laennec retains his opinion, that a true *vomica* is a rare disease, and he shows that the symptoms assigned to it arise from the sudden evacuation of a large mass of softened tubercles, from the discharge of a pleuritic effusion into some of the air tubes, or from a rapid and copious flux from these tubes themselves. Of this last occurrence Andral gives some striking examples. Himly, it seems, has maintained the old doctrine, that pulmonary abscess is common: and Laennec tells us that this view is supported by Sir A. Crichton. Ignorance of English literature leads the French authors to quote, as British opinions, the notions of men to whom no great deference is paid among ourselves.

Laennec has given a complete account of all the forms of *morbid structure* which are developed in and around the lungs. Tubercles are the most common and most important of these. He describes their progress towards softening and excavation, and gives the symptoms by which this progress can be conjectured in some cases, and determined in a very few. He proves the possibility of a cure, by the cicatrization of the cavities remaining after the excavation of the tubercular masses. He shows, that art cannot accomplish a cure during the crude stage of the tubercles, nor do much to promote it after they are softened. He shows, that death is rarely produced by the first tubercles, but usually by subsequent crops, which form successively, each as the preceding has advanced to softening or excavation. To prevent these secondary crops our efforts are to be directed, and it appears that they may sometimes, at least, be successful. Laennec relies most upon the influence of the sea air, in a mild climate; and gives some returns to prove the comparative salubrity, even of the coast of Brittany, for persons disposed to consumption.

Broussais has maintained, that tubercles and other morbid growths are the result of irritation and inflammation solely. Laennec naturally asks how the same cause can produce effects so very different, as cancer, for example, and a scrofulous tumour. Predisposition must be admitted, or some powerful influence modifying the effects of the inflammation. To the predisposition, or to the modifying agent, each morbid

texture must owe its peculiar characters, though the inflammation may have been the immediate cause of its development. Many persons recover from inflammation of the chest, and never have a single symptom of consumption. Many die of consumption who have never had, so far as can be known, either bronchitis, pneumonia, or pleurisy. Tubercles seem sometimes to remain long in their first stage; and excavations to continue as long, without the development of secondary crops. In these cases, there may be no symptoms to attract attention. An attack of catarrh, or of peripneumony, may hasten the softening, in the one case, and the production of the secondary tubercles, in the other. The phthisis may become evident, for the first time, immediately after the subsidence of the inflammation, but obviously does not originate from it. Every inflammatory attack hastens the progress of consumption. Unluckily, depletion is seldom admissible, and often proves little less hurtful than the complication it was designed to remove.

Before concluding, we are anxious to make a brief review of the signs furnished by percussion and auscultation, in a few of the more common diseases. Some of these signs are readily observable, others more obscure. Some are decisive, others only conjectural. We shall endeavour to distinguish between these, in the hope of rendering the attempts of those who have yet to study them, less liable to error.

Percussion is, in our opinion, at least as difficult as auscultation, and requires quite as many precautions. Except in extreme cases, it furnishes no positive results, unless performed, comparatively, on different portions of the same thorax, or on the same part at different times. The fingers must be held in the same position, in all the trials, and applied at the same angle, and with equal force: the ear must have the same relative position to the part that is struck, and the muscles, by which that part is covered, must be put upon the stretch. With all precautions, the results are doubtful, when both sides are affected with the same disease. No standard being attainable, absolute excess or deficiency of sound can scarcely be ascertained. So, also, when one side sounds less clearly than the other, we cannot tell whether the resonance of the former is diminished, as by pneumonia, or that of the latter augmented, as by emphysema of the lung. It is only in particular circumstances, that we can even conjecture whether the want of sound proceeds from the presence of solid, or of liquid matter. Of the first beginnings of effusion into the lung, or between the pleuræ, percussion gives no indication; and it

can lead to a suspicion of disease of the heart or pericardium in extreme instances only. Great obesity and anasarca render it nearly or altogether useless. Alone, therefore, its utility, though unquestionable, is limited. That of auscultation is infinitely greater, and the two, conjoined, enhance each others' value.

The sound on percussion is clearest, and the murmur of the respiration and sound of the voice are most distinctly heard, at the upper part of the thorax, and in the axillæ. In the lower part of the chest, the liver and the stomach interfere with both modes of examination. The former deadens the sound on percussion; the latter, when distended with gas, sounds particularly clearly. These sources of error, once known, are easily avoided.

In auscultation, as in percussion, the muscles on the chest must be stretched by suitable positions of the head, the trunk, and the arms. The stethoscope must be held perpendicular to the chest, and its end kept closely and steadily applied. The examination must be made patiently, and repeatedly. We must choose a position which we can retain, for several minutes, without exertion or uneasiness, and must carefully guard against external noise, particularly from the rustling of our own, or the patient's dress. The respiration is most distinctly heard when a little hurried, and often becomes perceptible, after coughing, where it was before inaudible.

The different forms of *bronchitis* do not, generally, render the chest less sonorous. The respiratory murmur is often rendered fainter, and it is accompanied and obscured by certain *râles*, or unnatural sounds. The passage of the air through accumulated mucous or puriform secretion, produces the mucous *râle*, resembling the sound so commonly heard, from the throat, in moribund persons. This no one can mistake. Inflammatory thickening, without secretion, causes the sonorous or dry bronchial *râle*, a variable sound, often resembling the snoring of one who sleeps, or the cooing of a wood pigeon. When the secreted matter is scanty and very tenacious, there is the hissing or sibilous *râle*, which also arises from constriction of the air tubes. Dilatation is attended by the mucous *râle*, by bronchophony, and bronchial respiration. These resemble the sounds of the voice and of the respiration as heard, over the large branches of the trachea, at the roots of the lungs. Pectoriloquy is often present, and in extreme cases there is the cavernous *râle*, the sound produced by the air passing into a large cavity containing liquid. When a bronchial trunk is stopped up, as by dense secretion, no respiration is

heard in the corresponding portion of lung, but percussion elicits the usual sound, because the cells remain full of air. A certain vibration (*frémissement*) accompanies the *râles*, when the stethoscope rests immediately over the diseased part, or very near it.

In *peripneumony*, even before the symptoms have attracted much notice, a crepitus, or crackling sound, is heard during respiration. As the engorgement proceeds, this sound conceals more and more the natural murmur. When hepatization has occurred, both these sounds cease. In some cases nothing is then heard. In many, there is bronchial respiration, from the air entering the large trunks only, and bronchophony, from the increased conducting power of the solidified lung. When purulent softening has advanced far, there occurs the mucous *râle*. As the disease subsides, the signs again appear, in reversed order. The crepitous *râle* remains long, during convalescence. Early in the disease, the respiration becomes *puerile*, in the healthy portions of lung. The sound on percussion diminishes more and more, till the hepatization has fairly taken place. The diminution is always preceded by the crepitous *râle*. These signs are quite conclusive, and all of them are distinct and easily recognised, except the bronchophony and the bronchial respiration.

A slighter, or subcrepitous *râle* is the characteristic of *œdema*; which is commonly accompanied by bronchitis, or some other disease. In *œdema*, the respiratory murmur is faint, and the sound on percussion somewhat dull. It can scarcely be distinguished from the slighter degrees of pneumonia, without taking into account the general symptoms.

In pulmonary apoplexy, (the congestion of blood which commonly gives rise to the more copious hæmoptysis,) there is crepitous *râle* in the affected parts, passing into the mucous *râle*, as the blood rises into the larger tubes. All the chest sounds clearly, except one or more circumscribed portions.

In pleurisy, the effused liquid first obscures, and then, if very copious, obliterates the sound on percussion, and the murmur of respiration. These changes occur more rapidly, and more extensively, than in pneumonia, and are accompanied by no *râle*. The respiration may still be heard, close by the spine, where liquid cannot accumulate. Bronchophony, and bronchial respiration may occur. In a few cases, change of posture, by altering the place of the liquid, may change the parts which respectively sound and do not sound on percussion. The respiration on the sound side becomes puerile.

When the effusion has reached a certain degree, egophony may be heard: a peculiar acute thrilling sound of the voice,

as heard through the stethoscope. This arises either from the transmission of the sound through a thin layer of liquid, or from the flattened form to which the effusion has reduced the air tubes, as Laennec ultimately concluded. With very few exceptions, it disappears when the quantity of liquid becomes great, and its return is, then, a favourable symptom. As the liquid subsides to the lowest part of the chest, it is there that the sounds are first obscured. Egophony is usually most distinct at the angle of the scapula, and in a zone, two or three inches broad, extending forward to the sternum. To hear it well, the stethoscope must be applied firmly to the chest, and the ear lightly to the stethoscope. It is a variable sound, and may be confounded with bronchophony. Some sounds, not morbid, may be mistaken for it. Both sides ought to be examined before we decide that it exists, and it should be viewed with some distrust, by all, in their early trials.

Old adhesion of the lungs, to the walls of the thorax, may cause the respiration to continue audible, in particular places, throughout the disease. Concomitant pneumonia or bronchitis may introduce some obscurity, by the conjunction of its own signs with those proper to pleurisy. In cases of very copious effusion, the chest is dilated, and the intercostal spaces become prominent. When air, as well as liquid, exists between the pleuræ, slight succussion produces a fluctuation, sometimes sensible to the patient as well as to the examiner. This, Hippocrates knew.

When this mixed effusion communicates with the air vessels, metallic tinkling is produced, a sound resembling "that of a pin thrown into a porcelain cup, or of water falling into a deep vessel." It occurs very distinctly when the patient coughs, or speaks, sometimes even when he breathes. Its cause is the vibration produced, by these actions, on the surface of the liquid. The descent of a drop, detached from the upper part of the chest by change of posture, may give rise to this sound, even where there is no bronchial fistula.

In *emphysema* of the lungs, there is increased resonance on percussion, while the murmur of respiration is faint, or quite inaudible. These are also the signs of simple pneumothorax, a much rarer disease. Emphysema is distinguished by the added signs of the bronchitis, from which it usually arises, and by the symptoms of asthma which are almost always present. The chest is swelled out and rounded on one or both sides. A peculiar crepitation, resembling that heard when we press an emphysematous part, is one of the pathognomonic signs. This is only occasionally present, in dilata-

tion of the air cells. It is constant in the interlobular emphysema, in which the air has escaped into the common cellular tissue of the lungs, in which there is also another sound, ascribed to the rubbing of the uneven surface of the lung against the walls of the chest, during the alternate motions of respiration. Most of these signs are sufficiently recognisable.

Auscultation cannot detect the *beginning of tubercular consumption*. Before the sound of the respiration is obscured or altered, or the resonance on percussion diminished, the tubercles must be numerous and crowded together, or the surrounding lung condensed by pneumonia, or tubercular infiltration. The dull sound, the absence of murmur, the bronchophony, may arise equally, from congregated tubercles, or from pure peripneumony. After excavation has taken place, pectoriloquy occurs, obscure at first, becoming gradually more distinct, as the cavities are enlarged and emptied. This, as is well known, is the apparent passage of the voice of the patient, to the ear of the observer, directly through the tube of the stethoscope. In very extensive excavations, the pectoriloquy becomes again doubtful or obscure. The cavernous or gurgling *râle* can almost always be heard, at least after coughing and on deep inspiration. It is the surest sign of large cavities. The *tintement métallique* may be heard in certain cases. Pectoriloquy is impossible, when the cavity is filled with liquid, and when the larger air tubes, opening into it, are obstructed. Hence, it may disappear for a long time, and return after coughing. The most accurate idea of it may be obtained by listening to some one's voice through the stethoscope applied over his larynx.

Perfect pectoriloquy can hardly be mistaken. Imperfect, or doubtful, it so closely resembles other sounds, that the beginner must not hastily draw conclusions from it. Its absence is no proof of freedom from disease. Unfortunately, the discovery of its existence can assist us little in the treatment of individual cases, for our remedial measures must, generally, be taken much earlier, in order to be successful. It may save the surgeon from hastening the death of a consumptive patient, by the performance of any capital operation.

Cicatrized excavations and pulmonary fistulæ continue to give pectoriloquy.

To conclude: When the sound, either of the respiration or of the voice, is diminished or changed in character, or complicated with any of the *râles*, and still more when the sound elicited by percussion is, at the same time, decidedly altered, every one may conclude that disease exists, whatever difficulty he may have, at first, in determining its nature. The degree

in which the signs appear, marks the degree of the disease: their increase or diminution, and the order of their succession, indicate its advancement or decline.

The *diseases of the heart* present more obscure and more uncertain signs. Increased impulse against the parietes of the thorax shows increased thickness of the muscular substance of the heart. Dilatation diminishes the impulse, but renders the contraction audible over a greater extent of the chest. From its being heard more in the one or in the other side, we judge whether the right portion, or the left, is chiefly implicated. Changes take place in the comparative strength and duration of the contractions of the auricles and ventricles. That of the ventricles coincides with the arterial pulse. Its sound should be dull and prolonged, compared with the shorter and clearer sound of the contraction of the auricles. Thickened ventricles contract more slowly. When much dilated, they sound nearly like the auricles. The ventricles are the more liable both to dilatation and to hypertrophy. When these states are combined, the impulse is strong, and the sound clear and extensively heard. When the heart is softened, the sounds become faint or inaudible, and the impulse feeble or imperceptible.

All diseases of the pericardium are admitted by Laennec to be exceedingly obscure. Very copious effusion may render the sound dull, on percussion of the præcordial region. So also may extreme enlargement of the heart.

The sound of single pulsations, unlike the double contractions of the heart, indicates aneurism. Thus we may discover it in the abdominal, and in some parts of the thoracic aorta.

We have no constant or certain sign of diseased valves. The reliance which Laennec at first placed on the *bruit de soufflet*, and *bruit de lime*, or *de râpe*, he afterwards found reason to diminish very much. Both these sounds may occur, when no organic lesion exists. They are produced by the action of the heart itself, and not by the passage of the blood over the diseased parts, as was once supposed. When, however, they are constantly or very frequently present in the same situation, we conclude that disease is there. It must be considerably advanced before it can produce them.

In all cases, the diagnosis depends much upon the constancy of the signs, ascertained by repeated examinations at considerable intervals. They can never be estimated fairly, except when the patient's mind is calm, and when he has been for some time at rest. Palpitation may render violent the impulse of the weakest heart, and may alter the rhythm of its actions. Disorders of the heart always tend to injure the

lungs. They often arise from diseases of the lungs, and are often accompanied by independent pulmonary affections. In all these cases, the symptoms are obscured and complicated, by the mixture of those of the concomitant disease. We conclude, therefore, by repeating our caution, that no one should trust much to his observations, in heart-cases, until after considerable practice in the use of the stethoscope, and several verifications of his conclusions, by careful dissections.

XI. *Case of Disease of the Spine, in which the Ulceration originated in, and was confined to the Bone.* By WILLIAM AUCHINCLOSS, Member of the Faculty of Physicians and Surgeons, and one of the Surgeons of the Glasgow Royal Infirmary.

THE following case of spinal disease appears to me valuable, in so far, at least, as it tends to confirm the truth of the opinion, first suggested by Mr. Brodie, regarding the difference in the nature and treatment of these two diseases,—namely, ulceration confined to the *intervertebral substance*, and the same disease affecting the *cancellous structure* of the bone. In this respect it is perhaps not unworthy of being recorded.

7th Sept. James Graham, by trade a gardener, aged forty-five, of rather a spare habit, though healthy, met with an accident five weeks ago, the nature of which was as follows:—While standing on a bench, four feet high, with his arms extended in the act of pulling fruit from a tree, he happened to lose his balance, when, to support himself, he caught hold of one of the branches. After swinging a few seconds, the branch broke, and he alighted perpendicularly on the ground, a height of about two and a half feet. He felt little uneasiness at the time of the fall, which occurred at three o'clock, P. M., and, accordingly, continued at his employment during the remainder of working hours. Since the following morning, he has complained of a sense of tightness around the lower part of the chest, with pain in the right hypochondrium, particularly aggravated by motion, though not in the least impeding full inspiration. Pulse 76, weak; bowels moderate; other functions natural. Was bled from the arm three different times by a medical gentleman, whose advice he requested at the time; and has had two blisters applied to the region of the liver, but without producing any good effect.

The impression on my mind, from a very cursory exa-

mination of his ailments on first seeing him, was, that the liver, or muscles in its vicinity and about the back, had sustained some degree of straining by the fall. He was again blistered and otherwise treated as for simple injury of those parts, during the first fortnight. On one occasion, he experienced much relief from cupping near the spine on the right side, but was in no other respect benefited by the treatment.

The symptoms of his complaint had become now much more apparent, and, on a more careful inquiry being made, were found to be connected with slight curvature of the sixth, seventh, and eighth dorsal vertebræ. The convexity of the curve was turned outwards, and he seemed to suffer but little uneasiness in the part when firmly pressed upon. The following symptoms were then noticed:—Numbness of the lower extremities, with much bodily weakness and inability to sit, for even a few minutes, in the erect posture; scanty secretion of urine, costiveness, and some swelling of the abdomen; constriction and pain around the lower part of the thorax, most acute on the right side; loss of appetite, thirst, and a weak accelerated pulse.

On the following day, the caustic potash was applied on each side of the protuberance, but without occasioning relief at the time, or on the sloughs separating, four days after. He became daily weaker, and expired on the 21st of October, exactly eleven weeks and two days from the date of his falling from the tree. For some time previous to death, his belly was tympanitic and swollen to a great size; and he was much troubled with feelings of numbness in the left shoulder.

Inspection.—The pleuræ were extensively adherent on both sides. The lungs, with the exception of the posterior part of the right, which was collapsed, exhibited their natural appearance and structure. There was an abscess, containing about five ounces of curdy-looking purulent matter, in the posterior mediastinum. This was situated in front of the sixth, seventh, and eighth dorsal vertebræ, and encroached considerably on the right side of the chest. The body of the seventh vertebra was almost wholly destroyed by ulceration; but this had proceeded much farther on the right than the left side. The bodies of the other two vertebræ were also partially absorbed. In no part, however, had the disease extended to any of the intervertebral cartilages, all of which remained in an entire state. Notwithstanding the extent of destruction, the osseous structure both of the diseased vertebræ and of those in the neighbourhood, was of its natural hardness and colour. The liver was healthy, as also the other abdominal viscera.

I am not aware of more than two cases upon record of a similar description to the preceding. Of these, the history is detailed by Mr. Brodie, in his *Treatise on Diseases of the Joints*. One of them occurred to Mr. Earle at St. Bartholomew's Hospital, and the other at St. George's, under Mr. B.'s own observation. The ulceration had reached the cartilages in both instances, yet it seemed evidently to have originated in the cancellated structure. The present case, however, is a much better specimen of the disease in question; for in it the ulceration not only commenced in the bone, but was all along confined to it.* In Mr. Brodie's cases, the vertebræ in the vicinity were red, and, in some parts, so very soft, as to be easily cut with the scalpel; a manifest proof, with other circumstances, as tubercles in the lungs, of the scrofulous origin of the disease. In this instance, on the other hand, the bones were natural, both as regards colour and hardness, nor were the lungs in the least altered in structure.

In treating of this disease, with the view of distinguishing it from a similar affection originating in the intervertebral substance, Mr. Brodie regrets that there should exist no better criterion than the following, to direct us in our judgment. In ulceration confined to the cartilage, he remarks, the patient is benefited almost immediately on the issues being made, or, at least, feels himself uniformly easier after each application of the caustic; but this does not take place in the other species, for in it issues of every sort constantly fail in affording even the slightest relief. Moreover, he supposes that the form of disease which begins in the substance of the bone, is generally rapid in its progress, being more immediately followed by suppuration than that which commences in the intervertebral substance; and that, in consequence, destruction of the contiguous vertebræ takes place to a much greater extent in the one species of disease than in the other. "But farther than this," says that excellent surgeon, "nothing which I have hitherto observed enables me to point out any other circumstances, in which the symptoms of these different diseases differ."

It affords me much pleasure to be able thus far to bear testimony to the truth of Mr. Brodie's statements, respecting the diagnosis of these two affections. From a knowledge of the facts adduced by him, and to which I have now referred, I was enabled, in the present instance, to form an opinion as to the true nature of the disease, which was afterwards fully justified by the dissection. The case certainly affords a

* This is well illustrated by the preparation of the vertebræ, now in the possession of Mr. Mackenzie.

very striking illustration of the great rapidity of the disease, and of the utter inefficiency of caustic issues as a means of cure.

In the present case, as in most spinal affections prior to the appearance of the curvature, the symptoms were in a great measure equivocal, although less so than usual. I regret, therefore, that I should have overlooked its true character, during the first fortnight the patient was under my care. With the exception of a sense of tightness around the lower part of the thorax and pain in the region of the liver, there was no sign of spinal irritation present for upwards of seven weeks. Mr. Brodie allows that symptoms very similar to those occasioned by disease of the spine may arise from other causes; and he even admits that frequently no particular complaints are made by the patient previous to the discovery of the curvature. Nevertheless, I must confess, that, in the first instance, I was rather disposed to consider the ailments of this person as of trifling moment. As stated in the report, the appearance of protrusion was the first circumstance which led to a satisfactory explanation of the case. By this time, however, the disease was obviously far advanced, as the two orders of symptoms which ensue on caries of the spine, were then well marked.

It is perhaps not unworthy of observation, that the paralytic symptoms, consequent on pressure of the spinal marrow, were not limited to the parts below the seat of the disease. The patient had frequent feelings of numbness, particularly of the left shoulder. Mr. Brodie has never observed this to occur when the disease was situated under the middle of the dorsal vertebræ. The fact is important, and was first recorded by Mr. Copeland.

It appears to me likely that the disease commenced in inflammation either of the substance of the bone or of its investing membrane, and was the direct consequence of the concussion or sudden jerk at the time of the fall. The feeling of constriction around the lower part of the chest was, in all probability, the result of pressure, from the extent of the existing inflammation on the origin of the costal nerves in that situation. Had it otherwise originated from irritation on the spinal chord, then we should have been led to expect similar nervous feelings in other parts of the body at the same time. These, however, did not exist for any length of time, if at all, prior to the appearance of the curvature. In future, therefore, I should be much inclined to consider this symptom as not only the least equivocal, but, in a great measure, as a pathognomonic symptom of incipient disease of the spine.

When this has succeeded to an injury, the nature of the case will doubtless be rendered more apparent.

The inutility of issues in this form of spinal disease seems to depend on the kind of texture affected. My own experience perfectly coincides with what appears to be the established doctrine on the subject, viz. that caustic issues never prove of any service, except in instances accompanied by ulceration of the intervertebral substance. Perhaps in this way we can explain the relief from uneasy feelings in the lower limbs, which Mr. Earle's patient is reported to have experienced for some little time subsequent to the insertion of two caustic issues; as in this case there was not only extensive destruction of bone, but also ulceration, with loss of substance of part of the cartilages.

109, George's-street, 27th Nov. 1827.

XII. *Case of Pulsating Tumour of the Scalp, from Dilatation of the Branches of the External Carotid Artery.* By G. M. MACLACHLAN, M. D. One of the Surgeons to the Glasgow Royal Infirmary.

[With a Lithographic Sketch.]

ON the 9th July, 1825, W. Maclure, æt. 30, a discharged soldier, asked my advice about a pulsating tumour of a singular appearance affecting the principal arteries of the scalp on the left side. Having caused that side of the head to be shaved, the better to observe the nature of the tumour, it presented the following appearances:—

Soft, puffy, pulsating and somewhat elastic swellings of a varicose appearance were found to occupy the course of the temporal, posterior auris, and occipital arteries and their principal branches; each branch terminating by a tortuous extremity. These swellings could be made partly to disappear on pressure, but on its removal, they speedily regained their former volume. They pulsated throughout their whole extent, and the pulsations were synchronous with those of the heart. By pressing on the common carotid, the pulsations ceased all along the swellings; and, by intercepting the flow of blood through the temporal or posterior auris, the throb was interrupted in corresponding parts of the tumour. They were not painful on being handled, but he complained much of the torture he had experienced for the last two months, from the throbbing, which often deprived him of rest for nights together, and, as he said, made his existence miserable to him. The integuments covering the swellings

were of their natural colour; only at those points which were most prominent, they had a slightly blueish-red tinge.

This *arborescent* tumour commenced in front of the ear, immediately over the zygoma, and quickly swelling out, it became of the size of a split lemon, lying transversely over the ear. It sent a process forwards on the forehead, communicating by a tortuous extremity with the supraorbital twig from the internal carotid; a large process upwards to the crown of the head; and backwards, the main body of the tumour communicated with the puffy swellings of the posterior auris and occipitalis, which latter vessels gave a varicose feeling to the scalp over the left side of the occiput.

The largest and most prominent part of the tumour was immediately over the ear: at this point, the throbbing was very violent, and the integuments being very thin and rather pointing, it threatened ere long to burst.

The history he gave of his disease was the following:—About ten years previously he had the temporal artery opened for an attack of ophthalmia. A small aneurismal tumour formed at the point of incision, for the cure of which the artery was cut across, lower down; but this not succeeding, the vessel was again exposed and a ligature applied. The little tumour disappeared, he says, only for a time; on its return it was but small, gave him no uneasiness, and although he served as a soldier for five years afterwards, he never complained of it to his surgeon.

This disease seemed to me different from any kind of aneurism by anastomosis that I had either seen or read of. It evidently followed the ramifications of particular arteries, for, by pressure being made on a particular vessel, a corresponding portion of the tumour became flaccid and pulseless, showing distinctly that no free intercourse by means of cells existed in it.

I proposed the trial of pressure: he said it had already been employed, and that it gave him so much pain that he would not again submit to it. He urged me at once to proceed to tie the carotid artery, as he was informed that that was the only means by which the disease could be effectually cured. I then explained to him the possibility of taking up the vessels singly; and that, should we fail, it was then in our power to tie the common carotid. He agreed—and with the assistance of Professor Towers and Dr. Anderson, I began by laying bare the temporal artery as it emerges from the parotid gland: but on dividing the fascia-like substance which kept it in situ, it shot forth through the opening in the form of a loop, in calibre larger than a goose-quill; thinner in its coats,

and, if possible, more diaphanous than a vein; and thrilling violently at each pulsation. A ligature was applied to this loop; the wound was brought together with adhesive plaster, and, for additional security, a firm compress and bandage were applied. It was now evident that the vessel was diseased at the point of ligature, and the propriety of tying the common carotid hence became obvious. Pulsation had, however, ceased in the anterior and central portions of the tumour, which felt flaccid and doughy, showing that this plan of treatment would, in all probability, have been successful, so far as the vessels of the scalp, at least, were concerned, could the state of the arteries have been trusted to.

Next day the common carotid was tied, in the presence, and with the concurrence of Professors Burns and Towers, Drs. King and Anderson. An incision, about two inches and a half in length, was made along the inner edge of the sterno-cleido-mastoid muscle, commencing at the lower edge of the thyroid cartilage, and extending downward to within half an inch of the sternal extremity of the clavicle. A large branch of the exterior jugular vein ran across the line of incision, but by carefully cutting through the fascia-like platysma myoides, the vessel was easily drawn aside along with that muscle. The sterno-cleido-mastoideus was now seen forming the outer margin of the wound, and the omo-hyoideus crossing it superiorly. The dissection was cautiously carried deeper, until the descendens noni was seen over the sheath of the vessels. The artery and par vagum were now distinctly in view, but the internal jugular vein, which frequently gives much trouble during this operation, did not at all appear. The sheath was opened by cautiously scratching with the point of the scissors between the carotid and par vagum, which nerve was carefully drawn aside. A blunt aneurismal needle, armed with a very fine silk ligature, was now introduced, and passed with ease, from without inwards, under the vessel. The ligature being tied, the ends were cut short, and the artery left undivided. The wound was brought together with sticking plaster, and a light compress and bandage applied. He did not lose above a spoonful of blood, and his pulse, immediately after the operation, was 78, and of good strength. Immediately on tying the vessel, the varicose tumours of the head became devoid of pulsation and felt flaccid, although their prominence was but little diminished.

In the evening he felt his neck rather stiff—had slight headach seated principally under the *right* temple. Took some food with relish. Pulse 84. Skin rather hot.

11th July. He passed a good night. Wound free from

pain. Pulse 92. But in the course of the forenoon he was seized with severe pain of chest, particularly in the right side. Pulse 120, of moderate strength. Skin hot. Tongue white. No stool. *V. S. at two bleedings to 70 oz.—saline purgatives—a blister—blood first drawn much buffed.*

12th. A bad night. Pain of chest easier, but breathing much oppressed, from a sense of weight over the chest. Pulse 108, soft. Skin nearly natural. Two copious stools. Wound feels quite easy. *Tinct. Digit. and Anodyne at bedtime.*

13th. A good night, having slept for five hours. Respiration and sense of oppression as yesterday. Towards the afternoon complained of pain in the region of the liver, increased on pressure. Pulse 116, rather full. No stool. *V. S. to 24 oz.—castor oil—turpentine enema—warm fomentations—anodyne at bedtime.*

14th. Dozed during the whole night, and now mutters almost constantly, but he is quite collected when spoken to. Said the pain of liver was easier. Respiration much oppressed. Pulse 144, feeble. Perspires copiously. No fæces passed with the enema. He became gradually worse, and died at five p.m.

Dissection, fifty hours after death, in presence of Dr. Anderson and several medical gentlemen of Paisley, to which town the body had been removed. The weather being very hot, putrefaction had made considerable progress. The viscera of the abdomen appeared healthy. The intestines were much distended with flatus, devoid of fæces and blanched.

In the chest, some straw-coloured puriform matter was found in the anterior mediastinum: about a pint of thick grayish mucopurulent matter in the right cavity of the pleura, and a small quantity of bloody extravasation into the left. The pericardium was unusually devoid of fluid—the heart large and flaccid.

The wound, which had adhered throughout its whole extent, by the first intention, had partially re-opened from putrefaction. The carotid, the par vagum, and jugular vein appeared as if they never had been disturbed—nor was there the least appearance of pus around the ligature. On slitting up the artery, and cutting through the ligature at the same time, (the ligatured portion having been previously removed from the body), small but soft clots were found above and below the ligature, and the artery remained puckered from the recent deposition of lymph. Its inner coats were divided as with a knife, while its external was found dense, strong, and entire. Below the ligature, the inner coat of the artery was of a vermillion red colour, even that of the thoracic aorta bore equal marks of inflammation, but at the bifurcation it was of its

natural aspect; that portion also of the aortic arch nearer the heart than the coming off of the left carotid was healthy. The carotid in the neck was of its usual size, strength, and thickness; but on examining its branches on the head, they were found to have degenerated into dilated tubes of extreme thinness and transparency; which, apparently, yielding to the impetus of the blood, had become elongated, contorted, and ultimately convoluted on themselves, so as to form, by this species of doubling, the tumours which constituted this singular disease. These tumours felt like placenta, and to the eye, the larger portion immediately over the ear looked precisely like a bundle of earth worms coiled together.

I regret that from the peculiar circumstances under which this inspection was obtained, I had not an opportunity of examining, more at leisure, this very unusual disease of the arterial system, or even of ascertaining the exact point at which the disorganization commenced; whether the artery became gradually thinner, or whether the disease began suddenly; whether in the diseased portions the three coats existed, or the dense, but thin external one only remained; whether the branches of the internal carotid were similarly affected with the external, and thus giving rise to the epileptic fits to which he had recently become subject:—these points unfortunately must be left to conjecture.

I have been at some pains in searching through books for analogous cases, but Pelletan is the only author, as far as I know, who has distinctly described this disease. In his *Clinique Chirurgicale*, tome ii. two cases are given, which coincide in every particular with the one here detailed. One of these only, a girl 18 years of age, he had an opportunity of treating. Compression was first tried, but the patient could not bear it. He then tied the temporal artery: this promised to be successful, as far as the portion of the tumour supplied by that vessel was concerned, when unexpectedly the patient died, in consequence of an “indigestion.” He has fortunately favoured us with plates of this case, which are of great assistance in elucidating this subject, for he has said but little pathologically of the nature of the disease. He speaks merely of dilatation, but it is evident from plate ii. fig. 2, in which the convolutions of the arteries of the scalp are given, on dissection, that the view above advanced, viz. the doubling of the dilated vessel on itself, as the cause of the tumour, is a correct one. Boyer,* also, who saw this case, and has given the dissection more at length, says, in speaking of the structure

* *Traité des Mal. Chir.* tome ii. p. 295.

of the tumour.—“ Toutes les artères comprises dans la tumeur, au dessous du tissu donc nous venons de parler, étaient dilatées, flexueuses, bosselées, ici très larges, là très étroites, pleines de sang caillé, ou d'une humeur et blanche et épaisse. L'artère temporale depuis son origine, jusque vers le milieu de la tempe, avait éprouvé une simple dilatation... Plus haut l'artère temporale, et ses diverses branches, étaient bosselées, flexueuses, grosses et rouges.” His remarks on the occipital branches are to the same effect.

Mr. John Bell describes aneurism by anastomosis, to which the disease under consideration has most affinity, to be “ a congeries of active arteries, absorbing veins and intermediate cells.” Now, in the tumour which I have attempted to describe, there were no cells, no parenchyma as in the spleen, the bulk of the tumour was formed almost entirely by convoluted dilated arterial *trunks*, the veins being but little changed from their healthy state. These arteries did not appear to communicate more freely than by their ordinary inosculation; and in the less prominent parts of the swelling, they had more of the appearance of the contorted vessels of the gravid uterus, as represented in Tiedemann's beautiful plate, than any other anatomical comparison I can give. Mr. Abernethy* evidently alludes to this disease when he says, while speaking of *nævus*, “ for this preternatural enlargement of vessels is not always cutaneous. I have seen it occupying the whole substance of the cheek, neither appearing beneath the skin nor the membrane of the mouth. I have seen it in the orbit, &c.” The cases reported by Messrs. Travers and Dalrymple, in the London Med. Chir. Trans. vols. ii. and vi., in which the carotid artery was tied, for pulsating tumours of the orbit, appear to have been of this description.

I have made these remarks and extracts because I conceive there exists a pulsating tumour composed entirely of dilated and convoluted arteries, whose inosculation and interlacements are not more numerous than usual, only they become more apparent from their increased size. That this tumour may occupy a great extent of surface, such as the side of the head, the neck, or arm, from its following in a continuous manner the course of the arteries. That the term aneurism by anastomosis is not very applicable to it; and that from the advanced age of many of the persons in whom this disease has been met with, its congenital nature is more than doubtful, although Boyer, Pelletan and others are of this opinion. Whether, in the case of Maclure, the vessels were *perfectly*

* Surgical Works, vol. ii. p. 225.

sound at the period of opening the temporal artery, may admit of doubt. The difficulty of curing the small aneurismal tumour favours this doubt:—yet there certainly existed no obvious trace of enlargement of these vessels to lead to this conclusion. In explanation of this remark it may be necessary to state that the artery was opened by myself. The opening of the temporal artery, however, probably operated as an exciting cause on vessels already disposed to disease.

A sketch of the disease, previous to operation, accompanies this statement; and gives a much more correct idea of the appearances presented than any description, however minute, could possibly convey.*

XIII. *Report of Surgical Cases, and Treatment, in the Glasgow Royal Infirmary, for the Summer and Autumn quarters of 1827.* By WILLIAM YOUNG, M. D. Senior Surgeon &c.

THE duties of surgeon to the Royal Infirmary of Glasgow are performed by four gentlemen, appointed annually by the general board of directors of that institution. One senior, who must previously have officiated at least two years, and been two years out of office, and one junior who has never officiated before, are elected in room of the elder senior and junior who retire. This plan ensures popularity, it is agreeable to the profession generally, and for the prosperity of the establishment is perhaps the best that could be devised. It may fairly be questioned, however, how far it is well adapted for the improvement of surgery, for the investigation of protracted disease, or for the perfecting of any new plan of treatment. Until within the last twelve months, every surgeon behoved, at the end of three months' attendance, to hand over his patients to one of his colleagues; and except through the courtesy of that gentleman, could know no more of them; even of those cases which interested him deeply, and from which he augured important results. This, it is presumed, may partly account for the want of regular reports from the hospital published for the profession, and the very little benefit the art of surgery has derived from it, as a field of experience.

About a year ago, the surgical patients amounting on an average to upwards of eighty, being supposed too many for

* Since writing the above, I observe in two recent numbers of the *Lancet*, (211, 212) reports of a case of this disease, in which the carotid artery was tied by Mr. Wardrop. It is to be wished that this distinguished surgeon will, ere long, favour the profession with a more detailed account of it.

one individual to visit, examine, operate on, and prescribe for in one hour; instead of one for three months, two surgeons attended six months, admitted patients on alternate weeks, and consequently saw the terminations of protracted cases, and were enabled to come to conclusions more sound and valuable.

It has been in no small degree owing to this new arrangement, that I have had in my power to complete, (I would almost say,) an experiment on the treatment of Compound Fracture, which for a length of time I had lamented the want of an opportunity of fairly trying.

Compound Fracture.—The melancholy terminations of those cases of Compound Fracture which the young practitioner has witnessed under the usual hospital treatment, naturally induce him to form the general resolution of amputating almost indiscriminately. He knows well, that whenever a case is presented to him, instant decision becomes necessary, that he has it not in his power to watch the first symptoms of approaching gangrene, and then to arrest its progress by the knife: but that before replacing the torn integuments, or adjusting the shattered ends of the bone, he must fix, and irrevocably fix, amputate *now* or *never*. When added to this, there crowd upon his mind the dreadful suppurations and mortified limbs of the hospital; can it be wondered at, that the knife appears to him the safest line of conduct?

Leeches, cold applications, general depletion, and antiphlogistic regimen, large soft poultices and frequent dressings, all seem soothing and mild, and calculated to allay irritation: but do they prove so? Do not fulness of vessels and effusion supervene, tension of the fascia, erysipelatous integuments, irritative fever, deep-seated abscess, and gangrene?

What is Compound Fracture? A broken bone, with a wound or tear of the soft parts. Then why do such frightful consequences seldom or never follow either of these two injuries, when occurring singly? Because in either of these two accidents, the limb is firmly bandaged, the weakened and torn vessels thereby supported, injection below the fascia prevented, and above all, nature in her operations not too much interfered with.

Angus Cameron, æt. 50, an engineer, was admitted on the 7th July. Whilst removing some stones near a steam engine, the wheel of the engine caught his right forearm, and in endeavouring to save the trunk of his body, the left forearm became entangled also. The right radius was fractured one-third up, and on the back of the forearm, there was a wound nearly four inches long, through which fractured portions of bones

could be felt. Left radius was also fractured two inches above the carpal extremity, the superior portion of bone was much displaced, inwards and backwards; and on front of forearm, one-third up, there was a wound one inch and a half long, through which the fractured bone could be felt. On the anterior aspect of the superior third of the left forearm, there were two small wounds, and the probe passed freely and extensively under the surrounding integuments. The muscles of both forearms were severely lacerated, and there was much *infiltration of blood*, particularly in the left forearm, where the integuments felt very tense.

The wounds were dressed with oiled caddis, the many tailed bandage applied, and cushions with wooden splints, after the manner for simple fracture.

On the 12th, (five days after admission,) it is reported:—“Complained of no pain of either arm till last night, when the right began to be troublesome. On removing the dressings, there appears to be no swelling of any consequence, and the caddis is *only moistened* with healthy pus. Splints have not been removed from left arm. Slight delirium last night, but is costive, and speaks of pain about præcordia.”

Two days afterwards, the right arm was again bared, and about four ounces of thick purulent matter were pressed from an abscess in the immediate neighbourhood of the wound. From this time forward, the right arm was dressed every day, and a small opening in the bandages left to give exit to the pus.

It appears unnecessary to lengthen out the report, by recording trifling daily changes, either on the state of the right arm, or of the general health; but the progress of the *left arm* deserves particular notice.

Although at first the left arm was looked upon as the more seriously injured of the two, yet he never complained of pain in it, nor *were the splints or dressings removed till the 8th of August, being one month and one day* after admission. The following is the report of that date:—“Makes no complaint to-day, except of slight pain about left elbow joint. Splints and dressings have been removed for the first time. Little or no pus, no swelling nor tension, one of the wounds all but closed, and only slight superficial ulceration from pressure at the elbow joint.”

Notwithstanding these favourable and encouraging circumstances, unpleasant symptoms had before this date manifested themselves, and his ultimate recovery was despaired of. Most extensive sloughing took place over the sacrum; and on the 16th of August, he expired.

Dissection.—Fracture of the left radius had *united*, and the

soft parts appeared *firm* and *healthy* in every part of the forearm. In the right forearm, the inferior portion of the fractured radius was split through its *whole length*. The superior and inferior portions of the bone at the seat of fracture were bare to the extent of two inches, and there was not the slightest appearance of an attempt at union.

John Durrrough, æt. 32, a labourer, was admitted on the 16th July. A scaffold, two stories high, supporting a quantity of stones, on which he was standing, gave way. Some of the stones struck the lower jaw, the left ankle, and left hip, inflicting wounds on the two former. The lower jaw was fractured. The distal extremity of the left tibia was fractured transversely about an inch above its articulating surface. The fibula was fractured obliquely immediately above the malleolus; and the outside of the joint was laid open, anterior and posterior to the extensor tendons. On the outside of the ankle, there was a wound of the integuments *six* inches long; it commenced at the extremity of the malleolus, and ran upwards in the course of the fibula, forming a flap, three inches broad from before backwards. On the inside of ankle, there was another wound of the integuments; it commenced anterior to the inner malleolus, and ran transversely inwards and backwards around the ankle, communicating with the longitudinal wound on the outside of the ankle, both internal and external to the tendo Achillis. Along the outside of the joint, there were many bony particles, which had been detached from the extremities of the tibia and fibula. The ankle joint was but very slightly displaced. The large arteries, and all the tendons around the joint, had escaped, and were covered by the fascia; and the internal malleolus was not divided, nor were the ligaments injured on this side of the joint.

Pledgets of oiled caddis were placed over the wounds at the ankle, and fixed by adhesive plaster, and the limb put up after the manner for simple fracture. Neither splints nor dressings were removed till the 27th, being *eleven days* after admission. A little healthy pus was found on the wounds, which had begun to put on the appearance of healthy granulating sores. There was no redness, tension, or pain on pressure, at any part of limb, which was put up again in the same manner.

“Aug. 2d. Splints and dressings have just been removed for the second time; wound has a granulating and healthy appearance. About half an ounce of pus, thick and healthy, and without fœtor, discharged. No redness nor tension. Limb can be freely moved about for the application of bandages.

“Aug. 24. Two days ago had rigors, and an enlarged gland was observed in groin. Some erysipelatous redness on fore-part of ankle appeared yesterday, and inflamed absorbents about knee-joint. Leeches were applied, and the pain and fever have diminished.

“Aug. 25. Redness increasing about knee-joint; leeches were repeated this morning, with relief; splints have still been kept on leg.

“Sept. 1. Redness of thigh gone for some time, and feels no pain, except at outer part, and back of foot, where a small abscess has formed; a puncture has discharged half an ounce of pus.

“Sept. 10. Wound at inner ankle cicatrized; that at outer, seems a healing sore; bones have re-united; splints finally removed, being the *fifth time* they have been unbuckled since first application.”

Straps and simple bandaging were used from this date, and on the 6th October he was dismissed cured.

Thomas Poole, æt. 8, was admitted on the 17th of August. Whilst standing on the street, he was knocked down by the shaft of a cart, and one of the wheels went over his right leg and left foot. The toes of the left foot were fractured, and torn from their connexions to the metatarsus. The integuments of the right leg, from the superior third of the tibia, along the ridge of that bone to below the inner ankle, were detached from before backwards, and formed a thin flap, above three inches broad. The fascia of the flexor muscles was destroyed, and the muscles separated from one another, but without loss of substance. The posterior tibial artery could not be felt. The tibia was fractured obliquely; the fracture communicated with the wound, and some small splinters were detached about four inches above the ankle. The foot felt cold.

All the five toes of the left foot were amputated, and a small portion of the distal end of the metatarsal bones clipped away.

The right leg was put up with straps, oiled caddis, bandage, and splints.

“27th (ten days after accident). Bandages and dressings have just been removed for the first time from right leg. Little or no suppuration, no sloughing, and no tension of surrounding integuments. Surface of sore has a florid, granulating, and healthy appearance.

“Oct. 1st. Fractured leg dressed again; pus healthy; granulations rather luxuriant and florid.

“Oct. 5th. Third dressing of fractured leg; new skin be-

ginning to shoot from every point. Bones united; granulations rather flabby, protracting the cure."

From this time forward it was treated as a common sore.

Erysipelas, Subfacial Inflammation, and Gangrene.—Several instances of that form of erysipelatous disease affecting the lower extremities, so ably described by Mr. Hutchison, occurred this season; and incisions, the treatment recommended by him, were used with the most marked advantage. This practice appears to be here completely established. But instead of making a number of small incisions as practised by him, I prefer making one or two long ones. These incisions are covered with oiled caddis, and a many tailed bandage moderately firmly applied. No poulticing. The immediate relief experienced, and the rapidity of cure are highly satisfactory.

A case of gangrene of the forearm, depending on a cause ascertained by dissection, and by no means usual, excited considerable interest.

Mrs. Picken, æt. 55, was admitted on the 11th of September. The right hand and nearly the inferior half of the forearm were cold, black, and gangrenous; this appearance terminated abruptly at living skin, but there was no line of separation; the gangrenous parts on being handled crepitated, and were covered with a serous oozing. She was aware, however, of forcible pressure when applied on any part from the back of the hand upwards. There was much swelling of the arm extending to the shoulder; the integuments were tense and hardish, and the skin was of a dusky yellow colour, darkest in the neighbourhood of the dead parts. The arm felt hot and was very tender to pressure, particularly about the elbow joint, but she had scarcely any pain when lying still. Pulse 112, compressible; tongue dry and brownish; skin covered by cold perspiration; bowels open; no hiccup or vomiting.

Six days previously to admission, she was attacked by rigors without obvious cause; and on the following morning, observed some redness on the inside of the forearm, which became the seat of violent pain. But it was only on the day before her admission, that the skin on the back of the hand and forearm was noticed of a dark colour.

Free incisions, through the tense and inflamed integuments, were made; wine, spirits, opium, &c. were employed to the fullest extent; but on the third day after admission she expired.

Dissection.—The sheath of the brachial artery at the bend of the arm, of seven inches of the superior portion of the ulnar, and of three inches of the superior portion of the radial, was

distended and surrounded by dark pus. The vessels themselves to the above extent were filled with coagula, their coats felt rigid and thickened; and along the inside of the ulnar artery there was a coating of organized lymph three inches in length.

Could this affection be occasioned by her carrying heavy baskets, her common employment? Would amputation of the arm have saved her life? The gangrene must have depended on the obstructed state of the circulation of the forearm, and therefore differed most materially from common subfacial inflammation.

Injuries of the Head.—Among several accidents of this kind, one rather extraordinary recovery occurred, and on this account deserves to be recorded.

Walter Cook, æt. 10, whilst ascending a coal pit, and only six feet from the bottom, was struck on the hind head by a stone the size of a man's fist. He vomited immediately after the accident; and bled from the nose, and profusely from the wound over the occiput. He inclined to sleep, but could be roused. On freely laying open the integuments, which were much cut by the injury, the occipital bone was found fractured, a triangular portion, two inches broad, attached in front by its base, but detached at the sides and apex, was depressed, and firmly wedged below the posterior part of the occipital bone. From this, a fissure, a quarter of an inch wide, could be traced downwards in the direction of the foramen magnum, and from the widest part of this fissure, brain was observed oozing out. The pulse was quick and small; the left pupil dilated.

By means of the elevator, the depressed portion of the cranium was brought to its proper position, and the wound dressed lightly.

Various changes in the symptoms and treatment occurred; and leeches to the head, purgatives, diaphoretics, and anodynes were at different times employed. Suffice it to say, that this case, which at first appeared perfectly hopeless, was discharged cured, on the 2d October. The age of the boy and width of the fissure, perhaps contributed both not a little to this remarkable recovery.

Nævus Maternus cured by Vaccination.—Jane M'Gibbon, æt. three months, had on admission a roundish tumour, nearly as large as a sixpence, on the right side of the chin. It was considerably elevated above the surrounding skin, had a purplish colour, and appeared to be formed of blood vessels. At birth the tumour was only the size of a split pea.

Around the border of the tumour, as well as all over its

surface, minute punctures were made, and vaccine lymph freely applied. In ten days thereafter, the whole disease was involved in one pustule, but when this became incrustated and was thrown off, there still remained, a dark coloured, prominent, and diseased surface. Another suppuration succeeded; and a third; when at the end of five weeks a complete cure was effected, no trace of the disease remaining, nor mark, further than what follows vaccination, on a healthy part.

This cure was hardly completed, when another little child was presented in private practice, with a *nævus* advancing rapidly, and occupying the middle and edge of the upper eyelid. The same process was followed, with very similar results. A cure was effected, but after a very tedious festering and ulceration. Indeed, it appears evident that nothing further is required to effect a cure, than to institute a process of suppuration, by cow-pox, by caustic, or by any thing else. As the most gentle of all these means, vaccination is entitled to a preference. But when this has been used in the common way, and for the ordinary purpose, and before a mark of this kind has excited much attention, I am inclined to think that an *antimonial plaster* would constitute by far the best substitute. I am sorry that no case has as yet occurred to give me an opportunity of making the experiment.

Before these two cases fell under my care, a child was admitted into the Infirmary with a *nævus* about the size of a large almond, occupying the red part of the under lip. It was clipped away, not by triangular excision, but *along the line of the lip*. Three vessels required ligature, but in ten days the part was covered by healthy cuticle, and no disfiguration occasioned. I am satisfied that this mode should more frequently be employed in extirpating cancerous lips. I have frequently performed it successfully in extensively diseased cases. It is uniformly practised by Baron Dupuytren.

Lithotomy.—I operated twice for stone—the cases were very different in all respects, both as to the difficulties experienced during the operation, and as to their ultimate results. The operations were performed by running a straight probe-pointed bistoury along the curved staff.

One of the subjects was a boy nine years of age—the stone was about the size of a Turkey bean. The only peculiarities in his case were, that his pulse kept as high as 130 for five days after the operation, apparently depending on a depraved state of his bowels; and, 2dly, that he was somewhat longer than ordinary in passing urine naturally, it being upwards of twenty days before the whole urine was discharged by the penis. The other patient, a weaver, *æt.* 26, said, that so far back

As ten years previous to admission, his urine assumed a bloody tinge, in consequence of stress. He experienced some heat along the urethra when voiding it, and slight pain in the right lumbar region. These symptoms subsided in a month; but shortly afterwards a feeling of heat returned, with slight pain at the point of penis, and he was subject, after long intervals, to similar attacks. But the affection was never severe, nor did it prevent him from following his employment, except when he made some unusual exertion.

The attack which induced him to present himself as a patient was of seven weeks standing, and becoming gradually more violent. The pulse was 120; he had thirst, rigors, and cold perspirations; and slept little.

Various soothing remedies were had recourse to—the hip-bath, laxatives, anodynes, &c. and twelve days after admission, the operation was performed. The forceps slipped twice without moving the stone from the fundus. It was now ascertained to be very large, and suspected to have some adhesion to the inner surface of bladder. A larger pair of forceps was used, and after the employment of very considerable force, the stone was extracted. It proved to be a very rough mulberry calculus. The one end, that not included in the forceps, was covered with a thick soft membrane, very similar to what is found on dissection within the trachea of croupy children. The calculus, when stripped of this membrane, weighed two ounces, and measured in circumference five inches by four and a half.

Every thing appeared favourable till the fourth day, when he began to complain of the right side of the thorax. On the fifth day, the pain impeded respiration, and the stethoscope detected active inflammation of the right lung. Bleeding, blistering, and other remedies were tried in vain. He died on the 12th day after the operation.

On dissection, it was ascertained that the inferior half of right lung was hepatised, the superior half much gorged with blood. There was copious effusion of coagulable lymph over the whole surface of the right pleura. This was the case also with the left pleura, though in a lesser degree. The left lung was healthy, and only a few ounces of serum in both sides of chest.

The bladder was considerably thickened, but no ulceration of its internal coat. The wound was somewhat ragged about the prostate gland. There was no appearance of inflammation in the abdomen, nor beyond the immediate neighbourhood of the wound.

Rupture of the Urethra.—A boy, *æt.* 15, was admitted on the 16th of July. About 19 hours previous to admission,

whilst attempting to walk along a fence formed of stakes and cross-bars, he fell astride. He suffered great pain at the moment, and after a sleepless night, the swelling had considerably increased. An increase of swelling was observable on every effort to expel urine, and only a few drops had come away. On admission, the scrotum, the integuments of the perinæum, the penis, and the abdomen, to the extent of a few inches above the pubis, were swollen, tense, and painful on pressure, particularly above the pubis. There was considerable ecchymosis on the surface of the perinæum and adjacent parts of the nates, but no wound. Pulse 120, and sharp. Bowels costive.

He was instantly placed on the operation-table, his hands and feet secured by tapes, a catheter introduced into the urethra, as far as the ruptured point, and a free incision made, as in the lateral operation of lithotomy. Clotted blood was removed to about the extent of ℥j., and immediately anterior to the prostate gland, the bare catheter was exposed. Instead of trying to carry the catheter on, for the purpose of leaving it in the bladder, it was judged proper to remove it, and to trust to the opening in the urethra closing, as happens after the operation for stone; and in this expectation we were not disappointed.

In the evening of the day of operation, smart hæmorrhage occurred, and the artery of the bulb was tied. The greater part of the urine, on the following day, came by the penis; the whole of it on the next; and on the 18th of August he was dismissed perfectly cured.

This case shows how simple this accident is when promptly and properly treated. Had the operation been delayed for another day, urinary abscess, sloughing, and, probably, death, might have been the consequence. It shows also, that a catheter retained in the bladder, which is always troublesome to manage, is by no means essential to the recovery.

Hydrocele.—Several operations for the radical cure of hydrocele were performed. That by excision of a small portion of the tunic, I think, deserves a preference. One patient died in a few days after the operation, although the inflammatory action of the parts was moderate. Extensive effusion of serum into the ventricles of the brain was discovered on dissection.

Amputations.—All the *amputations* were performed with Lisfranc's knife. The patient certainly suffers less pain by this mode of transfixing the limb, than by the old circular operation. It can be done in a shorter space of time, and the stump not only cicatrizes sooner, but is fleshier and firmer ever after. The tourniquet is never used when the operation is above the elbow or knee-joint.

XIV. *Report of the Diseases which prevailed among the Poor of Glasgow, during the Autumn of 1827.* By JOHN MACFARLANE, M. D. Member of the Faculty of Physicians and Surgeons, Senior District Surgeon to the City Poor, and President of the Medico-Chirurgical Society of Glasgow.

THE advantages both to the physician and the statesman, which may be ultimately derived from the accumulation of medico-statistical documents, are sufficiently obvious. It is only, however, by careful investigation, continued for a long series of years, that any thing like accurate data can be obtained, by which we could be enabled to form a probable estimate of the various circumstances, favourable or unfavourable to the duration of human existence. The many sources of moral and physical deterioration, which exist in a large and overcrowded city, generally render those exposed to their influence more prone to complicated and unmanageable forms of disease, and less able to resist their inroads. To ascertain the comparative frequency of disease, and its effects among the numerous workers in the different factories of this city and suburbs, and to ascertain the particular diseases to which each class is exposed, is an inquiry too wide and extensive for the limited nature of this report, although it is one of unquestionable interest and importance. I intended to have presented the result of my observations on these interesting topics, in a methodical and systematic form; but at present, I must confine myself to a tabular view of the diseases which have occurred among the poor of this city, during the months of August, September, and October last, adding such remarks, as may tend to illustrate their character and peculiarities.

The poor of this city who are unable to obtain medical aid, when under disease, are recommended by a minister or elder to the surgeon in whose district they reside, and are attended and supplied with medicine at the expense of the town's hospital, an establishment for the support of which the inhabitants submit to an annual assessment. This mode of procedure has existed in Glasgow for many years, and has been found to work so well, both as an efficient and economic plan of administering to the wants and necessities of the sick poor, that it has wholly superseded the necessity for the establishment of charitable dispensaries. It may be proper to state, however, that the district-surgeons have not the means of obtaining for their patients, from any public source, either diet, cordials, or clothing, suited to their respective conditions,

and that they are, therefore, in general, deprived of these important auxiliaries in the treatment of their diseases. Medicine, when appropriately administered, may occasionally do much good in arresting disease, but it is obvious, that in many cases a proper supply of nourishing food will be more useful in restoring to health, than all the productions of the Pharmacopœia. There are six surgeons, to whom the medical care of the sick is intrusted, each having under his charge a particular portion of the town, called a "district." These districts are unequal in extent, and are merely arbitrary divisions, the boundaries being formed by the principal streets, without any very accurate reference to equality of population. They are as follows:—

North-east district, Dr. Macfarlane, surgeon; South-east district, Mr. Weir, surgeon; North-west district, Mr. Stirling, surgeon; South-west district, 1st division, Mr. Paterson, surgeon; South-west district, 2d division, Dr. A. Buchanan, surgeon; South-west district, 3d division, with the Town's Hospital, Dr. Young, surgeon.

Having obtained from the district-surgeons a list of the prevailing diseases, during the period embraced by this report, I am enabled to present the following table:—

	No. of Cases.	No. of Deaths.		No. of Cases.	No. of Deaths.
Abortio - - - - -	2		Continued - - - - -	699	24
Abscess - - - - -	7	2	Dyspepsia - - - - -	35	1
Amenorrhœa - - - - -	8		Enteritis - - - - -	10	1
Anasarca - - - - -	26	5	Epilepsy - - - - -	2	
Aneurism of aorta - - - - -	3	1	Epistaxis - - - - -	2	
Anomalous - - - - -	2		Erysipelas - - - - -	19	2
Aphthæ - - - - -	4		Fever - - - - -	116	1
Ascites - - - - -	9	2	Fistula - - - - -	2	
Asthma - - - - -	13	2	Fracture - - - - -	7	
Bronchitis - - - - -	15		Gastritis - - - - -	1	
Bruise - - - - -	14		Gastrodynia - - - - -	11	
Burn - - - - -	7		Head, injury of, - - - - -	1	
Calculus vesicæ (operation)	1		Hemiplegia - - - - -	2	
Cancrum oris - - - - -	1		Hæmorrhoids - - - - -	3	
Carbuncle - - - - -	2		Hæmoptysis - - - - -	5	
Carditis - - - - -	3	1	Hernia - - - - -	4	
Catarrhus - - - - -	14		Hepatitis - - - - -	27	
Cephalalgia - - - - -	13		Hydrocephalus - - - - -	3	3
Chlorosis - - - - -	1		Hydrothorax - - - - -	3	
Cholera - - - - -	5		Hysteria - - - - -	38	
Chorea - - - - -	3		Hysteritis - - - - -	2	
Colica - - - - -	2		Icterus - - - - -	3	1
Cornea, ulcers of, - - - - -	4		Impetigo - - - - -	4	
Cynanche - - - - -	34	1	Iritis - - - - -	7	
Debility - - - - -	6		Joint, diseased, - - - - -	4	
Diarrhœa - - - - -	60	1	Lepra - - - - -	1	
Dislocation - - - - -	5		Leucorrhœa - - - - -	18	
Dysentery - - - - -	435	9	Lumbago - - - - -	2	
	699	24		1031	33

	No. of Cases.	No. of Deaths.		No. of Cases.	No. of Deaths.
Continued - - - -	1031	33	Continued - - - -	1228	44
Mania - - - - -	5		Rheumatismus - - - -	32	1
Menorrhagia - - - -	18		Rubeola - - - - -	11	
Morbus Coxarius - - - -	2		Schirrus uteri - - - -	1	
Nephritis - - - - -	5		Sciatica - - - - -	2	
Nodes - - - - -	1		Scrofula - - - - -	12	
Obstipatio - - - - -	11	1	Spina bifida - - - - -	2	1
Odontalgia - - - - -	6		Sprain - - - - -	13	
Ophthalmia - - - - -	27		Syphilis - - - - -	6	
Otitis - - - - -	1		Tabes mesenterica - - - -	5	
Palpitatio - - - - -	4	1	Teething - - - - -	4	
Paralysis - - - - -	3		Tinea capitis - - - - -	1	
Pemphigus - - - - -	1	1	Tumour - - - - -	12	
Peritonitis - - - - -	1	1	Ulcer - - - - -	42	1
Pertussis - - - - -	4		Urticaria - - - - -	9	1
Phthisis - - - - -	16	4	Variola - - - - -	23	2
Pleuritis - - - - -	22	1	Vermes - - - - -	28	
Pneumonia - - - - -	22	2	Vertigo - - - - -	14	
Porrigio - - - - -	1		Vomiting - - - - -	2	
Prolapsus ani 1, uteri 1 -	2		Whitlow - - - - -	6	
Psora - - - - -	45		Wounds - - - - -	9	
	1228	44		1462	50

From the annual lists of diseases which I have regularly kept for the last eleven years, it would appear, that, in general, autumn is the least sickly season among the poor of this city; and this opinion, I am glad to find, corroborated by my friend, Mr. Weir, whose experience, in all the minutiae of this practice, has been considerable. There is, however, an unprecedented number of some particular diseases reported during last autumn, such as dysentery, cynanche, and the various inflammations of the thorax and abdomen, along with a considerable diminution of the diseases which are common among the poor at all seasons; so that, comparing this with former years, when no epidemic prevailed, we have little more than the usual average number of cases reported. It may be satisfactory to show the number of cases contained in the above list, that have been treated in each district:—

Quarterly Amount of Cases in N. E. District.....	587	—Of these are Cases of Dysentery	190
... .. in S. E. Do.....	150	... ..	62
... .. in N. W. Do.....	230	... ..	46
... .. in S. W. Do. 1st division	210	... ..	58
... .. in S. W. Do. 2d division	218	... ..	60
... .. in S. W. Do. 3d division	67	... ..	19
	Total, 1462		Total, 435

Dysentery.—The unusual prevalence of this disease during the last autumn calls for our particular notice. The poor have been, certainly, more liable to its attacks than the middle and higher classes of society, being more exposed to the atmospheric changes, improper diet, and other causes which are

believed to influence its production. I have had under treatment, in the N. E. district, 190 cases; of these, 120 were males, and 70 females. Only eight of these occurred under puberty, and in them, the disease was milder and more manageable. It existed to a considerable extent, and probably for two or three weeks, in some parts of the town and suburbs, before it appeared very prominently in this district. A few cases are reported during the first week of August; but it was only towards the end of this month that any material increase was observed. From this period, it continued gradually to extend till about the middle of October. Since that time, although it has not altogether disappeared, it has certainly decreased in a very marked manner. There were only three deaths in the 190 treated in this district, and all these were males. In two cases, the disease commenced towards the end of pregnancy, and during its progress labour came on, and was favourably completed, after which the dysenteric symptoms speedily disappeared. The deaths from this disease, in all the districts, amount to one in $48\frac{1}{3}$, being an amazingly small mortality, considering the severity of the symptoms, and the numerous insurmountable obstacles which attend the medical management of the sick poor in their own houses. Although, in a considerable number, the symptoms were mild, yet, in a great proportion, the disease continued from ten to twenty days, and in some for a considerably longer period. It was sometimes sudden in its accession, but, generally, its true character was not manifested for three or four days, and until this period, the febrile excitement was seldom very prominent. When all the fæcal collection was evacuated, the abdominal pain and desire to go to stool increased rapidly, often amounting to five or six calls in the hour, with violent tenesmus—the stools were scanty, and consisted of mucus, either alone or mixed with blood, sometimes in great quantity. The pain was either fixed in the hypogastrium, or midway between the umbilicus and the left anterior spine of the ilium, or about the arch of the colon, frequently aggravated by pressure. Vomiting sometimes occurred. Hiccup was a very frequent and troublesome symptom in the advanced stage. The pulse was in some cases not at all affected, but in general it ranged from 100 to 140 in the minute, and was small and feeble. The skin was harsh and dry; the countenance pale, shrunk, and anxious; the tongue covered either with a thick yellowish or dark-brown fur, or sometimes dry, smooth, glossy, and chopped. The urine was scanty and high coloured, accompanied with ardor, and generally with pain at the orifice of the urethra.

Dissection displayed, in every case, marks of extensive inflammation in the mucous texture of the colon and rectum, with its morbid consequences, in all stages, from simple vascularity, without much apparent change of structure, to either a broken-down gangrenous state of the affected parts, or to thickening and ulceration. There was also found, in almost every instance, marked congestion of the vena portæ and liver, with more or less affection of the mesenteric glands.

The disease, unquestionably, consists in an inflammatory affection of the mucous coat of the colon and rectum. But at the commencement, although there may exist considerable pain in the abdomen, there is reason to believe that the irritability of the bowels is not altogether the consequence of inflammatory action, which is at first usually of a slow insidious or chronic kind, but rather of spasmodic excitement. The derangement of the biliary system is another early and prominent symptom in the history of the disease; the function of the liver being, in many cases, completely suspended, and no bile discoverable in the evacuations for many days. In other cases, bile is secreted and discharged, but in small quantities, and of a vitiated quality; but when it becomes a healthy and prominent ingredient in the stools, the violence of the disease may be considered as past. The congestion discoverable after death in the branches of the vena portæ is, no doubt, one of the most important links in the chain of morbid symptoms. I am not inclined, however, to view this as the cause of the disease, but rather as a consequence of previous excitement in the mucous texture of the alimentary canal, and of that derangement in the biliary system which so frequently manifests itself during the progress of almost all our autumnal diseases.

The following plan of treatment was generally adopted:— To an adult, from 15 to 20 grains of calomel, combined with a grain of opium, were given in pill; and if the tenesmus and mucous discharge were not sensibly diminished, the dose was repeated in eight or ten hours. I am satisfied that this formula procures more immediate relief, and produces far less irritation than a much smaller dose of calomel, even with the same proportion of opium. Having produced a certain impression on the alimentary secretions, the bowels were gently acted upon by small doses of castor oil and laudanum, frequently repeated, and attempts were made to allay the irritation, which was generally excessive, by opiate clysters, Dover's powder, antimonials, and the warm bath, when it could be procured. So soon as the constitutional irritation was by these means diminished, I ordered, every four or six hours, a pill, containing

calomel gr. ij. opium gr. j. ipecacuanha gr. ss. partly with the view of locally improving the secretions, but chiefly to excite mercurial action in the system, which always appeared to check the farther progress of the disease, soon after the mouth became affected. When there was fixed pain in the abdomen, leeches to the part, or around the anus, were extremely useful. Blisters were also employed, but their efficacy is, in my estimation, somewhat doubtful. I required to bleed from the system only in one case, and although the patient was of a robust habit, it appeared to be injurious. In many of the cases, stimulants required to be administered to a great extent. A troublesome diarrhoea often remained after the dysenteric symptoms had disappeared, for which small doses of blue pill, chalk mixture with opium, and light bitter infusions were beneficially employed.

Cholera was less prevalent during last autumn than for several former years. It prevailed extensively during 1823 and 1824, and proved fatal in one district case, within thirty hours of its commencement. During the two subsequent years, although of less frequent occurrence, it yet existed to a considerable extent, and occasionally proved fatal, either by suddenly exhausting the powers of life, producing extensive congestion in the internal cavities, or effusion into the brain. The worst cases existed during the prevalence of hot sultry weather, but I have also seen not a few well marked cases during winter. Of course, there are other causes besides those arising from atmospheric heat, which, in particular states of the system, are adequate to produce the disease. Indulgence in ardent spirits, a practice which exists among the poor of this city to a deplorable extent, with the daily and unlimited use of unripe vegetables, without an adequate proportion of other nourishment, tends powerfully to impair the tone of the chylopoietic viscera, and thus disposes to cholera. I have seen some of the worst cases among washerwomen, and I imagine, that exposure to the rays of the sun in the public Green, during warm weather, with partial immersions of the extremities in cold water, while the rest of the body is overheated, and intemperance, to which this class are prone, render them in a peculiar manner liable to its most severe forms.

Fever.—It is by no means wonderful, that this disease should prevail more or less, at all seasons of the year, among the poor and crowded population of a large city. Although we have never been without a few cases on the list, yet it is very obvious, that since 1817–18, when epidemic fever spread so extensively, in this city and suburbs, it has been steadily

increasing. This has in part depended on the painful privations to which so many of the working classes were subjected during the late unprecedented commercial distresses. There is also another fruitful source, to which the continued generation of the contagion may be attributed, and that is the crowded state of the poor within the city. Although new streets and squares have been formed in all directions for the accommodation of the affluent, yet the poorest of the working classes have been left altogether unprovided for, by any modern erections, suited to their increasing numbers and necessities. On the contrary, many of the old houses in Salt-market, Bridgegate, &c. which formerly afforded shelter to hundreds, have been recently demolished, and replaced by more expensive buildings, their previous inmates being scattered through other parts of the city, and obliged to crowd into places already over-filled, or to lodge in dark and damp cellars, totally unfit for human habitations. Under such circumstances, it cannot be expected that fever will decrease. The number of fever cases in the N. E. district, during the year, averages from 250 to 300; but during the prevalence of the epidemic above alluded to, nearly 1000 cases were treated in their own houses, and 300 sent to the Infirmary and Fever Hospital. Fever seems to occur most in spring and summer, but occasionally to prevail during winter to a considerable extent. There has been no death among the 40 cases treated in the N. E. district during last autumn, although in several there existed much biliary and intestinal derangement.

Burns.—The great diversity in the remedial management of this class of injuries, is not less notorious among the vulgar, than it unquestionably is in the profession. Without intending to discuss the many topics connected with this subject, I cannot refrain from alluding shortly to three rather severe cases which came under my observation during the above quarter. In the first, the right arm in a state of complete vesication from a scald with boiling water, was immediately put up with finely carded cotton, which was removed only when it became completely moistened with the discharge. The pain was so acute for several hours, that the patient could hardly be persuaded to continue the application. The pain ultimately, however, subsided, and the cure was completed in about 18 days. In the second, the injury was more extensive; it covered the front of the chest and abdomen, and was also produced by boiling water. The surface was covered with lint moistened with a solution of the chloride of lime (gr. ij. of the salt to an ounce of water), and the

dressings retained constantly imbued with the lotion for 10 days before they were removed, when nearly two-thirds of the abraded surface were cicatrized. The second dressing was removed four days afterwards, when the cure was found complete. During the progress of the cure, acute pleuritis occurred, requiring free bleeding, purging, and the use of emetic tartar in solution. In the last case, both lower extremities were scorched by the clothes catching fire, and the injury extended deeper than in the two former. The same treatment was pursued as in the last case, although, from the nature and situation of the injury, and the advanced age of the patient (59 years), the cure was more protracted. The first dressing was removed on the 12th day, when the greater part of the leathery slough produced by the destruction of the cellular texture, was found separated, exposing a florid granulating surface. The lotion was reapplied, and continued nearly three weeks longer before cicatrization was completed. I consider this a very excellent application to burns; it stimulates moderately, destroys fœtor, and maintains a degree of heat and moisture, favourable to the separation of sloughs, and to the subsequent cure. In my estimation, however, no small share of the credit is due to the mode of its employment. Instead of removing the dressings daily, and thus exposing an extensive and inflamed surface to various sources of irritation, they are allowed to remain for several days, care being taken to keep the parts perfectly moist, by the constant application of the fluid by means of a sponge. We thus preserve the injured parts in a state of perfect quiescence, and avoid every disturbance to the healing process. Before the lotion is applied, if the vesications are large and tense, it is necessary to permit the escape of the serum by a number of small punctures, allowing the detached cuticle to remain, which forms a useful covering to the tender surface, and does not interfere with the subsequent cicatrization.

Wound of the Eye.—A small sharp pointed wire, was by one of her companions, accidentally thrust into the cornea of a girl, 14 years of age, while at work in a cotton mill, and immediately followed by a gush of hot water from the eye. On examining the injured organ, about an hour afterwards, it was found inflamed, intolerant of light, and acutely painful, especially when moved, or compressed by the lids. The cornea was flaccid, and there was a discharge of aqueous humour on every attempt to fix or steady the eye. Through the wound in the cornea, a small portion of the iris protruded, not larger than a pin head; and from the slightly ragged appearance of the prolapsed portion, there was reason to believe that

it was also wounded; the pupil was irregular, and the vision obscured. An aqueous solution of belladonna was dropt into the eye, and the moistened extract freely applied to the eyelids and brow, in order to dilate the pupil, and thus withdraw the displaced iris before any adhesion had taken place to the cornea. This was effected in about 20 minutes, when a finely pointed crayon of lunar caustic was applied to the aperture in the cornea, and a minute slough formed, which acted as a plug, and prevented the escape of the aqueous fluid. This application was frequently repeated, always before the previous slough had begun to separate, and was only discontinued when the effusion of lymph had fairly closed the opening. The vision was perfectly restored, and in a month the exact situation of the injury could hardly be discovered. Of course general and topical bleeding, and other antiphlogistic measures were actively employed to ward off internal ophthalmia. This is the fifth case in which I have successfully adopted the same practice. Three were from wounds, and two from strumous ulcerations penetrating into the anterior chamber. One of these cases came under my care in the Royal Infirmary in the summer of 1826. It is evident, however, that the practice is applicable only to minute openings in the lucid cornea; for if they are large, whether from wounds or ulceration, it will be impossible to obtain a slough by caustic sufficient to prevent the escape of the aqueous fluid.

Diseases of Children.—It would be interesting to attempt to ascertain the comparative frequency and fatality in different years, and at different seasons, of the various diseases of childhood; but on this I cannot at present enter.

Although robust children may now and then be found in the crowded, dirty, and ill ventilated abodes of our city poor, yet by far the greater proportion present, even at an early period of life, that lax flabby state of the muscular system, and sallow and cachectic appearance, which, if not entitled to the appellation of morbid, predispose, in a marked degree, to the development of *scrofulous* ailments, and severe bowel complaints, and in fact, render the subjects of this state less able to resist the general inroads of disease.

A few cases of *chin-cough* and *measles* were registered, but in all the symptoms were unusually mild.

Small-pox has prevailed to a greater extent, both in the virulent and modified forms, during the last three or four years than formerly. There exists at present among the poorer classes, an increasing carelessness and aversion to vaccination, from a belief, that it does not afford adequate protection against the varioloid disease.

Diarrhœa is certainly the most prevalent and formidable disease of childhood during autumn. During last season, however, it was milder, and less frequent in its occurrence than usual. Children from six to twenty months old are more prone to its attack in an aggravated form, and more liable to have it complicated with disease of the head, than at a more advanced period, when the system has become more developed and less irritable. Dentition and weaning render children more liable to its attack; and the coarse improper food which so many of them use, by deranging the chylopoietic secretions, gives rise to sudden and violent forms of the disease. The children of the poor are seldom weaned before they have attained the age of from 14 months to two years, and many of them at a still more advanced period, which, along with otherwise imperfect aliment, must produce a state of irritability favourable to diarrhœa. I have frequently seen cases of this complaint where the mother's milk proved injurious, and when the symptoms resisted the usual treatment until this source of nourishment was withdrawn. The disease generally commences with vomiting and purging, which soon produce a pale and anxious expression of countenance. The eyes become sunk, the pupils are at first contracted, and afterwards dilated. The disease proves fatal, by inducing either convulsions, hydrocephalus, or tabes mesenterica. I have often witnessed its termination in hydrocephalus, which has, in some cases, appeared to supervene on a sudden suppression of the evacuations, but is more frequently to be ascribed to the excessive intestinal irritation, operating on the brain through the medium of the nervous system. I know of no disease so apt to induce symptomatic hydrocephalus as this form of diarrhœa, and am certain, that during the last eleven years, I have seen it thus rapidly prove fatal in more than fifty cases. The treatment consists in administering small doses of calomel with rhubarb, chalk, and some aromatic; a sinapism or blister to the stomach; the warm bath; with the occasional injection of a few drops of laudanum into the rectum, and the application of cold to the head. When the violence of the disease has been overcome, astringents may be used with advantage.

I shall shortly allude to one fatal case of *jaundice*, as illustrating a congenital malformation of rather rare occurrence. The child, at birth, was lively, and of natural appearance, but in about four hours afterwards became restless, vomited occasionally a glairy mucus, and was soon jaundiced. When first visited, about fourteen hours after, it was moaning incessantly; skin of a deep yellow colour, harsh, dry, and wrinkled; countenance sunk, and features sharp; abdomen somewhat

swollen and tympanitic. It had had no stool, but had voided about 2 drs. of saffron-coloured urine. The rectum was examined, and found pervious, and attempts were made, by enemata, the warm-bath, and medicine by the mouth, to procure alvine evacuations, but without effect. The child died 25 hours from its birth. As this was the sixth that had died in the same family under similar circumstances, the parents were anxious to have the body inspected. On laying open the abdomen, the bowels were distended with flatus, but pervious, and of natural appearance. The mucous coat of the stomach, especially around the pylorus, was very vascular, as was also the same texture in the upper half of the duodenum. The small intestines contained about a dessert spoonful of viscid mucus, but no meconium could be found in any part of the alimentary canal. The liver was natural; the gall-bladder much distended with healthy bile; the hepatic duct was enlarged, and easily traced to the gall-bladder; but after the most careful examination, there was found no communication with the duodenum, the ductus communis choledochus being wanting: thus affording satisfactory explanation of the symptoms. Upon inquiry, I found that the mother had borne eight children, two of whom were alive and in good health, and that all the others had died jaundiced, from 18 to 40 hours after birth.

Lithotomy.—John Radcliff, æt. 23, shoemaker, became a district patient about the end of September, in consequence of obscure symptoms of stone, which had occasionally annoyed him for 20 years. He complained of frequent and painful micturition, and a constant feeling of weight above the right groin. The urine deposited a little brownish sediment; but it had never been suddenly obstructed during its evacuation. Bowels costive. Pulse 90. Tongue dry, and thickly furred. A large sound passed easily into the bladder, and was moved in various directions without the stone being discovered; but on introducing it more deeply, and raising the point, a rough irregular calculus was distinctly felt at the fundus, towards the right side. The instrument could be passed around what appeared to be a projecting portion of the stone, and from one irregular point to another. Varying the position of the body produced no obvious change in the situation of the stone. The symptoms, except during two short periods, had never been so severe as to prevent him from following his trade, but were occasionally aggravated by violent exertion or intemperance. For the last two years, he had been almost free of painful symptoms, until ten days ago, when the present attack commenced, which has been the most violent.

He was freely purged, had supercarbonas sodæ, and anodyne enemata, but with little good effect. He was repeatedly sounded, and the stone uniformly discovered in the same situation. It was believed that if the unusual position of this calculus depended on spasmodic contraction of the bladder, this might be overcome by distending this viscus by injection, the patient being unable to retain a sufficient quantity of urine for that purpose. Accordingly about 10 oz. of tepid water were thrown into the bladder by Jukes' syringe, until it was felt prominently distended above the pubis, but without causing the stone to assume a depending position. From the long continuance of the symptoms, the numerous and lengthened intervals of ease, which he experienced, and the unusual situation of the stone, we had reason to believe that it was encysted. From the irritable state of the bladder, which was always obvious after sounding, it appeared improbable that a considerable sized rough calculus could possibly have remained so long loose in the cavity of this viscus, without producing more marked and violent symptoms. It was agreed in consultation to perform the lateral in preference to the high operation, which was at one time contemplated. The stone was believed to be encysted; but, as the point of the sound could be passed around a considerable portion, which appeared to project into the cavity of the bladder, it was expected that this might be laid hold of and extracted, although with some difficulty.

I operated on the 6th of October. After the prostate and neck of the bladder were divided, the stone could not be discovered by the finger; but on introducing a long pair of forceps, and pushing them up to the right side of the fundus, as far as the handles would permit, it was firmly grasped, and brought down with ease to the edge of the divided prostate, evidently bringing the fundus of the bladder along with it; when the instrument slipped. This occurrence happened frequently, and the forceps had always to be introduced in the same direction and to the same depth as at first, showing that the stone had not changed its position, and adding to the belief of its being encysted. This opinion was still farther confirmed, by retaining the stone as low down as could safely be done, with the forceps held in the left hand, while the right fore finger was introduced by the side of the blades, and the bladder found firmly contracted around it. The finger nail could be introduced between the edge of the cyst and the stone, round its whole circumference. To have employed much force in attempting to tear away the calculus, would have been dangerous; the bladder might have been inverted,

and separated from its neighbouring connexions. I therefore selected a pair of forceps with thin blades, introduced them to the necessary depth, carrying the handles well back towards the sacrum, laid hold of the stone, and by a slow wriggling motion, carried them along its surface, with the view of insinuating the points between the border of the cyst and the stone. When this appeared to be accomplished, the handles were gradually separated in several directions, so as to produce dilatation, if possible, without laceration, and the stone was again grasped, and with a little force at length extracted. It was of the mulberry kind, oblong, and weighed $1\frac{1}{2}$ oz. The one side was perfectly smooth, while the opposite was nodulated; and although there was no distinct neck, there was a well-marked groove, traversing nearly two-thirds of its circumference, exactly where it was grasped by the bladder. But little blood was lost, and the patient bore the operation, which lasted about 25 minutes, with much fortitude. An elastic tube was introduced through the wound, into the bladder, and retained for about 30 hours; after which the urine passed by the wound for about three weeks, when it completely closed. He had no bad symptoms, and about the middle of November was again at his employment.

The difficulties in this operation were greater than had been anticipated, and might have arisen from one of these three causes;—too small an opening into the bladder; temporary contraction of the bladder around the stone; or the stone having been encysted. That it did not depend on the first, I have no hesitation in affirming; for both external and internal incisions were free, and more than adequate to the escape of a much larger stone. Through an opening not more extensive, I succeeded, without much difficulty, in extracting from the bladder of an old man, in the Royal Infirmary, in the summer of 1826, the largest calculus which I have yet seen removed by the lateral operation, and which weighed nearly seven ounces. I am also convinced that the difficulty of extraction, in the above case, did not depend on spasmodic contraction of the bladder around the stone, an occurrence by no means uncommon, but that it was firmly encysted. It is probable, that at an early period, the irritation, arising from a rough stone, may have excited a temporary or spasmodic contraction, which, by organic changes, had subsequently become permanent.

ANALECTA.

1. *Soundness of the Lungs.*

DR. WM. LYONS, staff-surgeon, Edinburgh, proposes the following test for ascertaining the integrity of the lungs:—

The patient is to inspire fully, and during the following expiration to count as far as he can, slowly and audibly, without allowing himself another inspiration. The number of seconds he is able to continue counting in the expiration is noted; and is found to be greater in proportion to the integrity of the lungs. In confirmed phthisis, the time never exceeds eight, and frequently falls under six seconds. In pleuritis and pneumonia, it seldom lasts more than nine, and frequently falls as low as four. In hepatization, it ranges from eight to fourteen. With sound lungs, the individual counts from twenty-five to thirty, or even thirty-five seconds, during the expiration.—*Ed. Med. and Surg. Journ. No. 93.*

2. *Lithotrity, or Stone Drilling.*

MR. LISTON has published a case, in which he attempted to destroy a calculus by this operation.

Peter Runciman, æt. 62, applied in the end of July, with symptoms of stone, which he had experienced for only four or five months. He was sounded, and lithotomy proposed, but he was very averse to submit to it. Mr. L. had a few days before returned from Paris, where he witnessed the operations of Dr. Civiale. This case, from the short duration of the symptoms, appeared a very favourable one for the grinding process, and the patient very willingly agreed to submit.

Having accustomed the urethra to the straight sound by two or three introductions of it, at intervals of some days, Mr. L. performed the first operation on the 26th of September. The bladder being previously injected, the instrument was passed without difficulty. The stone was seized, and drilled; it slipped, was caught, and was drilled again, without the patient complaining of any but slight pain. He immediately after walked home, a distance of two miles. The irritation which followed was not great, and was subdued by the use of diluents, and camphor and opiate suppositories.

On the 9th of October, the operation was repeated; and again on the 18th, 27th, and 31st; as also on November 6th, 13th, and 17th, with various success. At each sitting, the stone was seized and drilled, and generally without difficulty or pain. From the expansion of the instrument in the operation on the 20th of September, Mr. L. supposed that the stone was about the size of a walnut. On the last, and one or two other trials, he imagined it was reduced in size, as he had hold of it pretty firmly with the prongs of the litholabe nearly closed. This was a deception arising from the shape of the stone.

On the 22d of November, Mr. L. sounded the patient very

carefully, and was satisfied that there was still a large calculus in the bladder. The old man was now impatient, and talked of being cut. Accordingly, Mr. L. performed lithotomy on the 25th. The operation, rendered more tedious from the impressions of the lithotritor on the edges of the stone, was finished in three minutes. The patient rapidly recovered.

The stone was of a flat spheroidal form, much larger than Mr. L. had supposed, and composed almost entirely of uric acid. The measurements were, in length $2\frac{1}{4}$ inches, breadth $1\frac{5}{8}$, and thickness $\frac{5}{8}$. The marks of twelve drillings were distinctly visible on different parts of the calculus, many of them very deep. One had entirely passed through, and four others all but through the smallest diameter.

Mr. L. finds, on trials with a stone of the same size and shape, that no secure hold can be taken of it, but with the flat side towards the drill. In any other position, it starts from the chaps of the instrument immediately on the drill being set in motion.

Had the calculus in this case, though of an unfavourable shape, been less hard and tenacious, it must have been destroyed by the fourth or fifth operation; so that this result rather confirms, than otherwise, the favourable impression Mr. L. has been led to form of lithotrixy.—*Ed. Med. and Surg. Journ. No. 94.*

3. French Sanitary Laws.

M. CHERVIN is at present occupied with a voluminous work, in which he intends to lay before the public the result of his investigations with respect to the causes of the yellow fever, undertaken with the special view of deciding the important question, as to the contagious, or non-contagious nature of that disease. As this work will contain an outline of no less than 800 authentic documents, which the author has collected during ten years, devoted to travelling and research in the countries where this epidemic has prevailed, it will, in all likelihood, have a powerful effect in determining the public opinion upon this important subject, and removing the doubt and obscurity in which it is at present involved. A considerable time will, however, be necessary to complete this valuable work; and as, meanwhile, the French government is occupied in revising the sanitary laws, with regard to yellow fever, its author could not permit himself to remain in silence, while he saw his countrymen enacting laws founded on erroneous principles, and about to incur a formidable expense in the construction of useless lazarettos.

Such are the patriotic views which have led to the publication of his *Examen des Principes de l'Administration en Matière Sanitaire*, Paris, 1827. The debate which more particularly called for this publication, took place in the Chamber of Deputies, May 31st, 1826. On that occasion, M. Boisbertrand, the director-general of the "*Etablissement d'utilité publique*," in support of a motion, to grant a sum of money for the erection of lazarettos, to prevent the spread of the yellow fever, laid before the Chamber a summary of the

arguments in favour of the opinion that the disease is contagious, confirming his statements by reference to the report of the commissioners sent by the French government, to inquire into the causes of the yellow fever, prevalent at Barcelona in 1821. It is, of course, less to the reasoning of M. Boisbertrand, than to the official documents on which it is founded, that M. Chervin directs his criticism. He examines successively the circumstances under which the epidemic made its appearance at Barcelona, Sans, Sarria, Xlot, Fraga, Canet-de-Mar, Salon, Sitgès, Asco, Nonaspé, Tortosa, Palma, Mahon, Las-Aguilas, Malaga, and Marseilles. At each of these places, the medical commissioners, MM. Bally, François, and Pariset, had endeavoured to shew that the disease owed its origin to contagion, being either imported directly from the West Indies or America, or brought directly, or indirectly, from some part of the coast of the Mediterranean, to which it had been originally so imported. M. Chervin, on the other hand, brings evidence to shew, that the disease is endemic in certain places of Spain, as at Barcelona, Tortosa, Asco, Mequinenza, and the island of Leon ; that it never occurs, but among persons inhabiting or frequenting the unwholesome districts ; that when carried by occasional visitors beyond the limits of these districts, it never propagates itself by contagion ; and that in no instance of the disease occurring in the sea-ports, could it be fairly referred to importation from the West Indies or America ; the majority of the supposed instances of that event being altogether destitute of evidence, while in the few instances in which a disease was actually communicated by the suspected vessels, that disease was not brought from abroad, but originated from exhalations from the corrupted bilge-water, and other impurities in the vessels themselves, occurred only among those exposed to such exhalations, and did not propagate itself farther by contagion. Our readers will easily conceive, that the evidence by which these propositions are supported, consisting, as it does, of minute and independent details, will not admit of being exhibited in a condensed form. All we can do is to recommend to them the work itself, as well worthy of perusal ; and none of them, we feel convinced, will peruse it attentively, without joining with us, in looking forward with pleasure to the appearance of M. Chervin's larger work, and anticipating from it a valuable accession to our knowledge on this interesting subject.

4. *Gymnastics.*

‘ THEY consist, as far as we have had an opportunity of witnessing them, in the use of a series of “bars,” in vaulting, climbing, leaping, and running, together with those which are technically styled “preliminary.” These latter are principally—throwing the arms forwards, as in boxing ; upwards, downwards, or backwards, as in the broadsword exercise ; jumping upon the toes ; bringing the thigh to a right angle with the body, in which position it is kept for a certain length of time ; and in imitating particular postures, as that of the fencer or gladiator. From this detail it will be seen, that these preliminary exercises are nothing more nor

less than a species of drill, which is certainly well calculated to open the chest, give power to the muscles of the extremities, and improve the carriage. To these we think no reasonable objection can be offered, and, when once seen, they can be easily practised by most persons without the necessity for any apparatus whatever. The bars are of two kinds. A round one is placed horizontally above the level of the head, and is styled the "horizontal pole." Upon this the principal feats are performed, some of them certainly surprising enough, both in the display of strength and agility. They, for the most part, depend upon the power of raising the head, by strength of arm, above the level of the pole, of keeping it so by means of one arm only, of bringing the knees and even toes to touch the bar, and of performing certain somersets and evolutions which would astonish the twirling dervises in the Eastern Tales. This, after all, is but a species of climbing, and as such goes to develop the chest, and enlarge the pectoral, deltoid, and biceps muscles, to a very considerable extent. The second kind of apparatus is the "parallel bars." These are straight bars, about a couple of feet asunder, and standing a little below the level of the armpit: one of which being grasped in either hand, the person lifts himself up, and walks along upon his hands, &c. Various manœuvres are gone through upon this machine also, some of them requiring a good deal of muscular force in the arm, and all of them dependant more or less upon the firmness with which the individual grasps, and supports himself upon the bars. As the former exercise was directed mainly to the biceps and flexor muscles, so this chiefly employs the triceps extensor, and latissimus dorsi. The climbing is performed upon ladders, ropes, poles, &c., but this we need not stop to describe. For the vaulting there is erected a wooden "horse," or, at least, a round log of wood placed upon legs, and so called; but here the arms and chest are still brought into play as much as, if not more than, the lower extremities; and some of the exercises we should consider dangerous, especially to a person disposed to hernia. Running and leaping complete the catalogue.—*Medico-Chirurgical Review, January, 1828.*

5. *Thirty-third Annual Report of the Glasgow Royal Infirmary.*

THE number of patients treated in the Glasgow Royal Infirmary, including those in the Fever Hospital, during the last twelve months, has exceeded that of any former year, amounting to 2930, viz. remaining 31st December, 1826, 207; admitted since, 2468; Fever Hospital, 255=2930. Of these 2131 were medical, 795 surgical cases. Males, 1566—females, 1364.

General Results.—Cured, 2146; relieved, 138; advice, 37; desire, 58; improper, 19; irregular, 22; dead, 305; remaining in the house, 31st December, 1827, 205=2930. Of this remainder, 65 were cases of fever, or nearly one-third of the whole.

Diseases treated in 1827.

Abscess, common, - - -	50	Fracture of clavicle, - - -	13
----- lumbar, - - -	7	----- jaw-bone, - - -	2
Amenorrhœa, - - -	7	----- ribs, - - -	6
Aneurism of aorta, - - -	3	----- cranium, - - -	2
----- by anastomosis, - - -	4	----- spine, - - -	2
Angina pectoris, - - -	3	----- compound :	
Anomalous, - - -	12	----- of extremities, - - -	13
Anthrax, - - -	7	Ganglion, - - -	3
Apoplexy, - - -	3	Gangrene, - - -	18
Bite of dog, - - -	3	Gonorrhœa, - - -	10
Bladder, diseased, - - -	5	Hæmorrhage from lungs, - - -	6
Brain, diseased, - - -	4	----- stomach, - - -	2
Bubo, - - -	10	----- nose, - - -	3
Burn, - - -	20	Hæmorrhoids, - - -	5
Caries, - - -	15	Heart, organic diseases of, - - -	16
Concussion of brain, - - -	3	Hernia, femoral, - - -	2
Constipation, - - -	5	----- scrotal, - - -	1
Contusion, - - -	50	Hypochondriasis, - - -	7
Calculus in bladder, - - -	5	Hysteria, - - -	15
Cutaneous affections :		Inflammation of bladder, - - -	1
----- erythema, - - -	5	----- brain, - - -	2
----- ecthyma, - - -	5	----- bronchi, - - -	25
----- eczema, - - -	1	----- intestines, - - -	7
----- herpes, - - -	2	----- kidney, - - -	2
----- impetigo, - - -	13	----- larynx, - - -	4
----- lepra, - - -	3	----- liver, - - -	20
----- lupus, - - -	3	----- lungs, - - -	28
----- pompholyx, - - -	2	----- mamma, - - -	5
----- porrigo, - - -	4	----- pericardium, - - -	2
----- purpura, - - -	3	----- periosteum, - - -	5
----- rupia, - - -	1	----- peritoneum, - - -	10
----- psoriasis, - - -	9	----- pleura, - - -	21
----- pityriasis, - - -	1	----- uterus, - - -	7
----- scabies, - - -	2	Jaundice, - - -	5
Cynanche, tonsillaris, - - -	7	Joints, diseased, - - -	33
----- parotidea, - - -	1	Kidneys, diseased, - - -	4
----- maligna, - - -	1	Leucorrhœa, - - -	5
Diabetes insipidus, - - -	4	Liver diseased, - - -	15
----- mellitus, - - -	2	Mania, - - -	5
Diarrhœa, - - -	28	Neuralgia, - - -	10
Delirium tremens, - - -	4	Necrosis, - - -	5
Dislocation, simple, - - -	15	Onychia Maligna, - - -	7
----- compound, - - -	2	Orchitis, - - -	6
Dropsy of abdomen, - - -	16	Paralysis, - - -	41
----- general, - - -	11	Paraphymosis, - - -	5
----- of brain, - - -	1	Phymosis, - - -	5
----- legs, - - -	18	Phthisis pulmonalis, - - -	42
----- thorax, - - -	5	----- laryngea, - - -	2
----- pericardium, - - -	2	Pleuralgia, - - -	5
----- tunic. vag. test. - - -	15	Polypus in nose, - - -	4
Dysentery, acute, - - -	105	Polypus in ear, - - -	2
----- chronic, - - -	5	Prostate gland diseased, - - -	3
Dyspepsia, - - -	35	Rheumatism, acute, - - -	57
Dysuria, - - -	5	----- chronic, - - -	12
Epilepsy, - - -	3	Rubeola, - - -	1
Erysipelas, - - -	35	Rupture of urethra, - - -	2
Exostosis, - - -	4	Scald, - - -	5
Eye, diseases of, - - -	17	Scirrhus and Cancer, - - -	30
Fever, continued, - - -	1078	Scrofula, - - -	6
----- intermittent, - - -	6	Sibbens, - - -	6
Fistula in ano, - - -	9	Spine, diseased, - - -	7
----- perinæo, - - -	2	----- irritation of, - - -	12
----- lachrymalis, - - -	3	Sprain, - - -	16
Fracture, simple :		Stricture in œsophagus, - - -	2
----- of extremities, - - -	81	----- rectum, - - -	1

Stricture in urethra, - - -	7	Ulcers, - - - - -	125
Narcosis from opium in attempted suicide, - - - - -	1	Varicella, - - - - -	3
Syphilis, - - - - -	69	Variola, - - - - -	25
Testes diseased, - - - - -	7	Varicose veins, - - - - -	5
Tumour, - - - - -	12	Wounds, - - - - -	30
Trismus, chronic, - - - - -	1	Whitlow, - - - - -	5

Medical Department.—The medical patients belonging to the above catalogue amounted to 2135, of whom 1055 were males, 1080 females. The average rate of deaths of the first has been one in $8\frac{2}{3}$; of the second, one in $10\frac{1}{4}$. The list has been greatly swelled by two formidable epidemics, typhus fever and dysentery. The typhus patients alone, excluding those admitted into the Fever Hospital, (now the Asylum for the Blind,) constitute fully one-half of the whole, amounting to 1078. This fever, which still continues to rage, has turned out peculiarly fatal and severe, the deaths of males being somewhat about one in seven; and of females somewhat above one in ten. The amount of males in the Infirmary was 223, of females 536; into the Fever Hospital, males only were admitted, and their number was 254. In the Infirmary, the type of the fever was particularly low, the pulse languid, and the heat rarely rising to 100° of Fahrenheit, generally standing much lower, so that few depletory measures were requisite. In the Fever Hospital, on the contrary, where the patients were all males, the bulk of them Irish labourers, an inflammatory tendency was frequently prevalent at the beginning, as indicated by sthenic affections of the chest, so as often to call for the lancet, though the usual malignity of the distemper seldom failed to evince itself, sooner or later, by the accustomed signs of typhus gravior, arterial debility, great prostration of strength, black tongue, and petechiæ. As for the practice, with the exception that blood-letting was much seldomer resorted to in the Infirmary than in the Fever Hospital, it was much the same in both hospitals, consisting of the warm-bath, or warm ablution of the whole body, shaving of the head invariably on admission, cathartics, evaporating lotions, leeches, blisters to the head and other parts, diaphoretics, anodynes, rubefacients, and the usual stimulants, wine, spirits, and sulphuric æther. In the peripneumonic cases, in the Fever Hospital, Laennec's mode of treatment by tartrate of antimony was tried, but was found not to answer.

The following tables are by Dr. Maclachlan, who superintended the Fever Hospital.

1. *Monthly Abstract of Admissions and Discharges of Fever Hospital.*—1827.

Months.	Remaining last Month.	Admitted.	Discharged cured.	Died.	Remaining.	Average number of Deaths.
February,	—	82	29	8	45	
March,	45	66	54	6	51	
April,	51	50	49	9	43	
May,	43	30	45	7	30	
June,	30	17	41	6	—	
Total,	—	254	218	36	—	1 in 7 1-18th.

2. Date of Death after Admission.

Day.	2d	3d	4th	5th	6th	7th	8th	9th	10th	14th	16th	17th	23d	28th	77th	Total.
No. on each day,	5	7	4	3	2	1	3	3	1	2	1	1	1	1	1	36

3. Causes of Disease, ascribed

To contagion,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133
Cold and wet, &c.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64
Gave no cause,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39
Cases not truly typhus,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
																254
																Total,

4. Places of Residence of Patients admitted since 1st March, 1827.

From Calton, Bridgeton, &c.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39
From Old Wynd, Bridgegate, Saltmarket, and vicinity,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
From High-street, Drygate, and neighbourhood,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
From Anderston, Camlachie, and neighbouring villages,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
From Gorbals, Tradestown, and Hutchesontown,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
From Gallowgate, and neighbouring streets,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
Unsettled, or unascertained,	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
																Total since 1st March,

From the above tables, (and evidence to the same effect is afforded by the Infirmary,) it will clearly appear that the prevailing typhus is no less distinguished for its contagious nature, than its fatality. Thus, out of 254 cases admitted into the Fever Hospital, no less than 133, or more than one-half, are distinctly traceable to contagion, and it is probable many more took their origin from the same source, though the poison may have made its approaches in a more insidious manner. In aid of the same conclusion, we learn that in one instance five cases were received from the same family, and in another, that eight were brought from the same lodging-house. Even in the uncommonly large and well ventilated wards of the Fever Hospital, the infection could not always be restrained or subdued, as was evinced by the circumstance, that of all the nurses employed, only two happened to be new to their occupation, or unaccustomed to a febrile atmosphere, and that both these two were seized by the distemper.

Though this fever abated, as usual, in spring and summer, it again broke out as winter set in, and has long been raging with its former frequency and violence. The Fever Hospital having been appropriated, since June last, to another purpose, and no temporary receptacle for the fever having been obtained, not only have the wards of the Infirmary been greatly overcrowded, but various patients with fever have been actually turned away from the door, for want of room. But to this evil there is now the prospect of a speedy termination. Plans, with estimates, for a permanent Fever Hospital, have been approved of, and an adequate sum has been voted for carrying them into immediate execution. The situation proposed for the new Hospital, is the north-east extremity of the Infirmary ground. The proposed dimensions are such as to contain 120 patients, and the building will be so constructed as to admit of enlargement if necessary, at a very trifling

additional expense. The estimated cost is £3000, to be taken from the capital stock of the Infirmary, which now exceeds £17,000.

The other epidemic that swelled the list of medical diseases was dysentery. It commenced in summer, and, as usual, arrived at its height in autumn. It has for some time past been on the decline. The number of patients was 110, 105 acute, 5 chronic, and belonging to the former were 60 males, and 45 females. Like the typhus, this disease, while it lasted, was uncommonly severe, the deaths in males being above 1 in 8 ($8\frac{2}{3}$), in females 1 in 10.

Concerning the remaining diseases, Dr. Brown and Dr. Balmanno state, that taking a general view of the various and numerous distempers they have been called upon to treat during the year, the decided bias of nearly the whole has been towards asthenia, or a state of system totally the reverse of vigour and excitement; in acute cases, manifested by arterial weakness; in chronic, by torpor, relaxation, and debility. Such traits of disease were to be looked for, from the privations and hardships of the lower classes—the consequences of suspended commerce, and languishing manufactures.

Clinical lectures on the cases of the medical patients of the Infirmary, are delivered by Dr. Brown and Dr. Balmanno. Number of pupils, 32.

Surgical Department.—The number of surgical cases was 795—males 511, females 284; average rate of death among the former, 1 in $14\frac{1}{6}$, among the latter, 1 in $14\frac{1}{5}$. The operations performed amounted to 80, of which about one-half may be reckoned capital or important.

Operations.

Amputation of thigh, - - -	7	Extirpation of lip, - - -	6
----- shoulder joint, - -	1	----- mamma, - - -	5
----- leg, - - -	8	----- tumours, - - -	5
----- arm, - - -	3	----- polypi, - - -	5
----- fore arm, - -	1	Fistula in ano, - - -	6
----- part of metacarpus, 1		Hernia, femoral, - - -	2
----- part of metatarsus, 3		----- scrotal, - - -	1
----- finger, - - -	9	Hydrocele, - - -	13
----- toe, - - -	1	Lithotomy, - - -	5
----- penis, - - -	1	Taliacotian operation, - - -	2
Aneurism in hand from a puncture, 1			
----- anastomatic, - - -	4		
Anus, imperforate, - - -	1		
		Total,	91

Of the seven amputations in the thigh, five were performed by the double flap, and two by the circular operation. Of the double flap cases, two died of gangrene, and three recovered. Both of the circular cases recovered.

The amputation at the shoulder joint was performed by a single flap, for necrosis of the head of the humerus, with success.

Of the eight amputations of the leg, five were circular, and three by the double flap. Of the five circular operations, four were cured, and one died from suppuration in the thigh. Of the double flap cases, two recovered, and one died from abscesses in the lungs.

The three amputations of the arm were performed by the double flap. Two of these recovered, and one died from sloughing of the

stamp. The amputation of the fore arm was done by double flap and recovered.

The amputations of the metatarsus, metacarpus, toes, fingers, and penis, were all successful except one case, where the metatarsal bone of the great toe was removed, and the patient died of phthisis.

The aneurism of the hand from a punctured wound, was cured by division of the artery. Of the four aneurisms by anastomosis, three were cured by excision, and one by vaccination.

The case of operation for imperforate anus, proved fatal at the end of a week.

The six cases of extirpation of cancer of the lip were successful.

Of the five cases of extirpation of scirrhus mamma, four were cured, and one died of pleuritis.

The five cases of extirpation of other tumours were successful, as were the five cases of extraction of polypi from the nose and ear; and the six cases of operation for fistula in ano.

Of the two cases of femoral hernia, one recovered, and one died of gangrene on the second day after the operation. The gut in the case of scrotal hernia, was found ruptured on opening the sac, and the patient died soon after the operation.

Of the thirteen cases of hydrocele, eight were cured by injection, four by partial excision of the tunica vaginalis, and one by tent.

Of the five cases of lithotomy, three were cured, and two died, one after three weeks, from ulceration of the bladder, and a large calcareous tumour in the mesentery—the other from pleuritis, ten days after the operation.

In one of the Taliacotian operations about two-thirds of the nose were restored, and in the other an aperture in the ala nasi was closed.

Clinical lectures on the surgical cases are delivered by Drs. Anderson and Couper. Number of pupils, 62.

Funds of the Infirmary, and Expenditure for 1827.

CHARGE.		
To Balance of Cash, from late Treasurer, - - - - -	L.	15 16 10
To Thistle Banking Company, for Balance, 26th December, 1826,		1131 11 6
To Annual Subscriptions, - - - - -		2807 12 6
To Extraordinary Receipts, Legacies, Donations, &c. - - -		1715 16 10
To Contributions, - - - - -		311 0 0
To Students' Tickets, Diplomas, Fees, &c. - - - - -		550 7 9
To Interest, from Sundries, - - - - -		832 6 10
To Rents, - - - - -		78 10 0
To Bond Account, bond paid in part, - - - - -		400 0 0
	L.7843	2 3
DISCHARGE.		
By ordinary expenditure, Provisions, Soap, Coals, Candles, &c.	L.	2994 1 7
By Medical expenditure, Wines, Spirits, Medicines, Salaries, &c.		1035 11 7
By Repairs and Furniture, - - - - -		688 15 0
By Incidental Charges, Printing, Stationery, &c. - - - - -		178 2 7
By Thomson's Legatees—Annuities, - - - - -		25 0 0
By Thistle Banking Company, Balance, 31st Dec. 1827, - - -		2612 7 6
By Asylum for the Blind, (with Interest, L.68 15s. 6d.), - - -		307 5 6
By Balance of Cash in Treasurer's hands, - - - - -		1 18 6
	L.7843	2 3

GENERAL STATE OF THE FUNDS, 31st December, 1827.

Thistle Banking Company's Balance,	-	-	-	-	L.	2612	7	6
Bond Account—Sun Lent,	-	-	-	-		14,350	0	0
Flat of House in Candleriggs,	-	-	-	-		900	0	0
Balance of Cash in Treasurer's hands,	-	-	-	-		1	18	6

L.17,864 6 0

Office-Bearers for 1828.

Directors—Hon. William Hamilton, Lord Provost; Archibald Campbell, Esq. M. P.; Alexander Garden, Esq.; William Maclean, Esq.; Dr. Jeffray; Dr. Badham; Dr. Millar; William Graham, Esq.; Hugh Robertson, Esq.; Very Rev. Principal Macfarlan, D. D.; Hugh M'Kinnon, Esq.; Dr. Corkindale; James Wilson, Esq.; George M'Leod, Esq.; Rev. Dr. Gibb; Charles Macintosh, Esq.; William Kippen, Esq.; Thomas Grahame, Esq.; William Gilmour, Esq.; Charles Tennant, Esq.; Colin Dunlop, Esq.; Robert Thomson, Esq.; David Napier, Esq.; James Eccles, Esq.; Charles Hutcheson, Esq.—Hector Grant, Esq. Treasurer.—Thomas Brown, M. D. and John Balmanno, M. D. Physicians.—A. D. Anderson, M. D. John Couper, M. D. G. M. M'Lachlan, M. D. and William Auchincloss, Surgeons.—T. Christie, Secretary.—James Reid, Porter.

6. Fourth Annual Report of the Glasgow Eye Infirmary.

THE number of patients who have sought the aid of the Eye Infirmary, during the past year, affords complete evidence of the growing confidence of the public in this Institution, and of its increasing usefulness. The total number of patients, since the opening of the Eye Infirmary, is as follows:—

1824.....	209
1825.....	292
1826.....	461
1827.....	508
Total.....	1470

The cases of all these patients have been made the subject of careful examination, a minute history of the progress of each has been recorded, and the treatment of each conducted with the most sedulous attention. To do all this for fifty or sixty patients daily, which is the average attendance at the Eye Infirmary, amid the multifarious duties of a general hospital, the directors believe to be impossible. By devoting an undivided attention to the diseases of the eye, they are fully convinced, that the most efficient aid is afforded to suffering individuals, while the knowledge of these diseases and of the methods of cure is promoted, in a degree to which no other plan could pretend.

PATIENTS TREATED AT THE EYE INFIRMARY DURING 1827.

Remaining on the list, 31st Dec. 1826,.....	133
Admitted since,.....	508
Total,.....	641
Dismissed cured,.....	353
— by operation,.....	18
— relieved,.....	32
— with advice,.....	30
— by desire,.....	6
— incurable,.....	4
— irregular,.....	48
Dead,.....	7
Total Dismissed,.....	498
Remaining on the list, 31st Dec. 1827,.....	143

DISEASES DURING 1827.

Inflammation of the eyes,		Brought forward,	359
catarrhal,	89	Hydrophthalmia,	1
— catarrho-rheumatic,	14	Staphyloma,	4
— rheumatic,	2	Wounds of the eye,	4
— erysipelatous,	1	Burns of the eye,	1
— gonorrhœal,	2	Cataract,	17
— from injury,	22	Glaucoma,	6
— general,	1	Hemeralopia,	1
— pustular, or strumous,	86	Amblyopia,	4
— with specks,	37	Amaurosis,	33
— with ulcers,	31	Pain of the eye,	1
— from measles,	9	Strabismus,	1
— of new born children,	10	Inflammation of the eyelids,	50
— cornea,	12	Inversion of the eyelids,	2
— iris,	7	Tumours of the eyelids,	7
Opacities of the cornea,	10	Ptosis,	1
Ulcers of the cornea,	7	Porrijo larvalis,	2
Contraction of the pupil,	3	Inflammation of the lachrymal sac,	8
Granular conjunctiva,	6	Stillicidium lachrymarum,	2
Symblepharon,	3	Encysted tumour of the orbit,	1
Carry forward,	359	Total,	498

OPERATIONS DURING 1827.

Extraction of cataracts,	3	Tarsoraphia,	1
Division of cataracts,	7*	Ptosis,	1
Artificial pupil,	6	Extirpation of tumours,	6
Staphyloma,	3		
Inversion of eyelids,	3	Total,	30

* This operation was performed once on two patients, twice on one, and three times on one.

FUNDS OF THE INFIRMARY, AND EXPENDITURE FOR 1827.

DR.		CR.	
To Cash in Glasgow		By House Expenses,	
Bank, 1827,	£256 8 10	Rent, Medicines,	
To Ditto, in Treasurer's		&c.	£164 8 7½
hands,	7 5 10	By Cash in Glasgow	
To Interest in Bank		Bank, 1828,	500 1 8
Account,	15 1 8	By Do. in Treasurer's	
To amount of Donations,	263 7 0	hands,	8 3 3¼
To Do. Annual Sub-			
scriptions,	126 4 0		
To Do. found in Box,	0 2 3		
To Students' Tickets,	4 4 0		
	£672 13 7		£672 13 7

Office-Bearers for 1828.—James Smith, Esq. of Jordanhill, President.—*Directors.*—William Smith, Robert Thomson, Thomas Stenhouse, James Davidson, James Hunter, Thomas Muir, Hugh Tennent, James Monteath, M. D. William Frew, Very Rev. Principal Macfarlan, D. D. Donald Cuthbertson, Rev. Ralph Wardlaw, D. D.—Matthew Perston, jun. Treasurer.—G. C. Monteath, M. D. and W. Mackenzie, Surgeons.—James Monteath, Secretary.—John M'Beath, Porter, and Collector of Subscriptions.

THE

GLASGOW MEDICAL JOURNAL.

VOL. I.]

MAY, 1828.

[No. II.]

I. *On the Mineral Waters of Scotland.* By THOMAS THOMSON, M.D. F.R.S. L. & E. &c. Professor of Chemistry, Glasgow.

[Concluded from page 32.]

II. SULPHUREOUS WATERS.

SULPHUREOUS WATERS are easily distinguished by the peculiar smell which they exhale, similar in some respects to the smell of rotten eggs—by the property which they have of blackening silver, and of giving a dark-coloured precipitate when mixed with sugar of lead. The most celebrated sulphureous water in England is Harrowgate, which is at once sulphureous and purgative; and may therefore be employed in a great variety of diseases. Two sulphureous waters in Scotland, situated almost at the two extremities of the kingdom, have acquired celebrity, namely, Moffat and Strathpeffer.

I. MOFFAT WATER.

Moffat lies at the bottom of a range of transition hills, which stretch with little interruption from St. Abb's Head, the southern extremity of the Frith of Forth, to the western coast of Scotland, where they lose themselves in the sea, on the north side of Loch Ryan, in Galloway. The situation is rather beautiful, owing chiefly to the contrast between the bleak mountains constituting the back-ground, and the finely wooded little hills and fertile fields in the immediate vicinity of the village. But the distant prospect is not so good. Annandale, which is stretched out immediately to the south, is too flat, and too bare of wood, to please the eye, and in point of culture seems rather behind the midland districts of Scotland. The mountains in Galloway and Cumberland are too low or too distant to form prominent objects, or relieve the flatness of the dale.

The mountains behind Moffat are composed of grey-wacke,

transition green-stone, and transition slate. I did not observe any alum slate; though it is probable that it exists in the neighbourhood. It may even be the bed from which the sulphureous spring rises. The country in the immediate neighbourhood is so completely covered with soil, that no opportunity was presented of determining the nature of the rock from which the spring flows. The well is about a mile and a half above the village.

This well has been resorted to by invalids for many years. A chemical analysis of it was published by Mr. Matthew Mackail of Edinburgh, in 1659. Sir Robert Sibbald describes it in his *Nuncius Scoto-Britannus*, published in 1683. A short treatise on it appeared in the first volume of the *Edinburgh Medical Essays*, in 1746, written by Mr. George Milligan, at that time a surgeon in Moffat. He celebrates the great efficacy of the water, in removing barrenness, and in curing scrofula. Dr. Johnston, who long practised medicine in Moffat, drew up an account of it, which was published by Dr. Garnett, in his tour through Scotland, about the beginning of the present century. Dr. Garnett spent a summer at Moffat with his family, during the time that he was a citizen of Glasgow. He was much in the habit of analyzing mineral waters, and carried a portable apparatus with him for that purpose. From a wine gallon of the water, he obtained

Common salt,	36 grains.
Sulphuretted hydrogen,	10 cubic inches.
Azotic gas,	~~~~~ 4
Carbonic acid gas,	~~~~~ 5

My experiments on this water were made in the summer of 1823. As the water issues from the pipe, it is quite transparent. But when kept for some time, it becomes opal coloured, as is the case with water impregnated with sulphuretted hydrogen gas. It has the well known odour of this gas, a slightly sweetish taste, and a specific gravity of 1.00255.

A. Action of Re-Agents.

1. When nitrate or acetate of lead is dropt into it, a dark-brown precipitate falls: indicating *sulphuretted hydrogen*.

A portion of the water was raised to the boiling temperature, and kept boiling hot in an open vessel till it lost the property of blackening a solution of nitrate of lead; showing that the sulphuretted hydrogen had been expelled. This portion was tested as follows:—

2. Nitrate of silver threw down a copious, heavy, white curdy precipitate: indicating *muriatic acid*.

3. With muriate of barytes, there was likewise a white

precipitate, not redissolved by nitric acid : indicating *sulphuric acid*.

4. Oxalate of ammonia threw down a white precipitate : indicating *lime*.

5. A portion of the boiled water was evaporated to one-tenth of its volume, and the lime was precipitated by *oxalate of ammonia*. The liquid was filtered, and a drop of phosphoric acid was added to it, and afterwards a drop or two of carbonate of ammonia. A white precipitate gradually appeared : indicating *magnesia*.

6. A quantity of the water being evaporated to dryness in a glass capsule, left a saline residue, in which crystals of common salt could be distinguished by a glass : indicating *soda*.

By the preceding trials, the presence of the following substances was ascertained :—

- | | | |
|---------------------------|--|--------------|
| 1. Sulphuretted hydrogen. | \| | 4. Lime. |
| 2. Muriatic acid. | \| | 5. Magnesia. |
| 3. Sulphuric acid. | \| | 6. Soda. |

B. Determination of the quantity of these constituents.

1. 1000 grains of the water were evaporated to dryness, in an eight ounce phial, in the way, and with the precautions formerly noticed, when describing the analysis of Airthrey water. The saline residue amounted to 3.003 grains.

2. 1000 grains of the water were mixed with a solution of nitrate of lead. The brown precipitate being collected on a double filter, and weighed, amounted to 1.2578 grain. It was a mixture of about 0.4193 grain sulphate of lead, and 0.8385 sulphuret of lead. This is equivalent to 0.106 grain sulphur, or 0.1093 grain of sulphuretted hydrogen ; which is equal to 0.3035 of a cubic inch.

3. 1000 grains of the water, previously deprived of its sulphuretted hydrogen gas by heat, were precipitated by nitrate of silver. The chloride of silver weighed 6.123 grains. Equivalent to 1.51 grain of chlorine.

4. 1000 grains, precipitated by muriate of barytes, gave 0.825 grain of sulphate of barytes. Equivalent to 0.28 grain of sulphuric acid.

5. 1000 grains, precipitated by oxalate of ammonia, gave 0.2 grain of oxalate of lime. Equivalent to 0.068 grain of lime.

6. Five cubic inches of the water, freed from lime, and reduced by evaporation to half a cubic inch, were treated with phosphoric acid and carbonate of ammonia. The ammonio-phosphate of magnesia obtained, weighed 0.26 grain. Equi-

valent to 0.033 grain of magnesia. Hence, 1000 grains of the water contain 0.026 grain of magnesia.

Thus, 1000 grains of Moffat water contain (besides the sulphuretted hydrogen),

Chlorine,	1.51 grain.
Sulphuric acid,	0.28
Lime,	0.068
Magnesia,	0.026
	1.884

It is obvious that the chlorine and sulphuric acid were in combination with bases. The 1.119 grain requisite to make up the saline contents of 1000 grains of the water were doubtless soda.

These saline constituents probably exist in the water, combined in the following manner:—

Sulphate of lime,	{	Lime,	0.068	} 0.165 grain.
		Acid,	0.097	
Sulphate of magnesia,	{	Magnesia,	0.026	} 0.078
		Acid,	0.052	
Sulphate of soda,	{	Acid,	0.131	} 0.236
		Soda,	0.105	
Common salt,	{	Chlorine,	1.51	} 2.516
		Sodium,	1.006	
Total,			2.895	

The constituents in an imperial gallon are as follows:—

Sulphuretted hydrogen gas,	21.290 cubic inches.
Common salt,	176.569 grains.
Sulphate of soda,	16.562
Sulphate of lime,	11.579
Sulphate of magnesia,	5.474
	210.184

I have no other evidence for the existence of sulphate of soda in this water, than that I obtained more sulphuric acid than was sufficient to saturate the lime and magnesia, and the certainty that no free acid existed in the water. My supply of water was too scanty to enable me to obtain crystals of sulphate of soda, even by the assistance of alcohol.

2. STRATHPEFFER WATER.

These wells are situated in the valley of Strathpeffer, a few miles west of Dingwall, the county town of Ross-shire. The situation is romantic, and the neighbouring country fertile and exceedingly beautiful. The wells seem to rise in the new red sandstone, of which the country is composed, and are at no great distance from the lofty mountain Ben Wevis, one of the

most conspicuous in the north of Scotland. These wells had been long known as medicinal, and an imperfect analysis of them was published by Dr. Donald Monro, in the Philosophical Transactions for 1772. They were brought into considerable celebrity by Dr. Morris, an Aberdeenshire gentleman, who built a pump-room, and was enthusiastically attached to the wells, which he affirmed to be the strongest and most salubrious in Great Britain. I visited the place during the summer of 1824, and took the opportunity to examine the water.

There are two wells at a little distance from each other. The temperature of the lower well, on the 24th of June, was 39°, and that of the upper 39 $\frac{5}{4}$ °. The day was rainy, and the temperature of the air rather under 60°. Both had the smell of sulphuretted hydrogen gas. But the upper spring was obviously stronger than the lower, though this last had been attached to the pump-room. The specific gravity of these wells was as follows:—

Upper well,	1.00193
Lower well,	1.00091.

They were analyzed precisely in the same manner as Moffat water, except that the sulphuretted hydrogen was determined by mixing the water with sulphate of copper, instead of acetate of lead. The sulphuret of copper was converted into sulphate, and the weight of sulphuric acid was determined by throwing it down by muriate of barytes. Knowing the weight of acid, it was easy to estimate the sulphur, and consequently, the sulphuretted hydrogen gas which the water contained.

An imperial gallon of the upper spring was found to contain,

Sulphuretted hydrogen gas,	26.167 cubic inches.
Sulphate of soda,	67.770 grains.
Sulphate of lime,	39.454
Common salt,	24.728
Sulphate of magnesia,	6.242

138.194

An imperial gallon of the water attached to the pump-room yielded

Sulphuretted hydrogen gas, 13.659 cubic inches.

The saline contents were similar to those of the upper spring, but in the proportion to them of 7 to 9.

Sulphate of soda,	52.710 grains.
Sulphate of lime,	30.686
Common salt,	19.233
Sulphate of magnesia,	4.855

107.484

The upper spring is more strongly impregnated with sulphuretted hydrogen gas than Moffat water; but the lower spring is a good deal weaker. It is rather singular that Dr. Morris should have been so much mistaken about the strength of these wells, as to attach the pump-room to the weaker spring.*

There are some other sulphureous waters in the neighbourhood of Edinburgh, as Corstorphine well, and Lord Gardenston's well; but so slightly impregnated as scarcely to be entitled to an analysis.

III. CHALYBEATE WATERS.

Chalybeates are easily distinguished by their inky taste, and by striking a black or a purple colour when mixed with an infusion of tea or of nutgalls. They contain oxide of iron, held in solution either by sulphuric acid or carbonic acid. There are two very remarkable chalybeates at Moffat, both of which I have examined. Peterhead chalybeate was at one time much frequented; but of late years it has lost its celebrity.

1. HARTFELL SPAW.

This mineral water springs from the base of Hartfell, the highest mountain in the south of Scotland, about five miles from the village of Moffat. The mountain seems to be composed of transition slate; and, if any confidence can be put in the description of Dr. Garnett, the rocks at the ravine

* A few weeks ago, two bottles of Strathpeffer water (I presume, from the wells which I have given an account of in the text) were sent me by Mr. Rainy, Surgeon in Glasgow. They were marked No. 1, No. 2. Their specific gravities were,

No. 1.	1.0022
2.	1.0015

An imperial gallon of No. 1. contained 18.231 cubic inches of sulphuretted hydrogen gas; while an imperial gallon of No. 2. contained 30.791 cubic inches. Thus, though the specific gravity of No. 2. was less than in the specimens which I analyzed formerly, the quantity of sulphuretted hydrogen was greater. It is probable, from this, that the quantity of sulphuretted hydrogen varies at different times of the year.

The saline contents were the same as of the specimens which I formerly analyzed, with two remarkable differences:—1. The quantity of salts was only about half as great as I found in the specimens which I myself brought from the springs, and of the authenticity of which, therefore, I can have no doubt. 2. Instead of common salt, I found in both bottles muriate of potash. This induced me to look back at the notes of my former analysis. But I did not find that any experiment had been made to determine whether the salt contained in the water was common salt or muriate of potash. It is therefore very probable that the salt contained in Strathpeffer water is not common salt, but chloride of potassium. This would make the quantity in the upper spring 31.32 grains, and in the lower 24.36 grains.

from which the spring issues possess the characters of alum slate. The water is quite transparent, and free from smell. The taste is sweetish and astringent, and the specific gravity 1.0007.

A. Action of Re-Agents.

1. Prussiate of potash strikes a bluish green when dropt into the water : indicating *iron*.

2. Neither tincture of nutgalls nor gallic acid produce any immediate change. But when a few drops of soda are added to the mixture containing tincture of nutgalls, it acquires the colour of port wine. That containing gallic acid, on the same treatment, becomes dark-blue : indicating that the iron is *not* in combination with *carbonic acid*, but with a *stronger acid*.

3. Muriate of barytes throws down a white precipitate, not redissolved by nitric acid : indicating *sulphuric acid*.

4. Nitrate of silver throws down white curdy flocks ; redissolved by ammonia, while light yellow flocks appear : indicating *muriatic acid* and *oxide of iron*.

5. Oxalate of ammonia produces no alteration in the water as drawn from the spring. But when it is evaporated to a third of its bulk, this salt throws down a white precipitate : indicating *lime*.

6. No trace of magnesia could be discovered in the water, even when reduced to one-tenth of its volume by evaporation.

7. I evaporated 1000 grains of the water to dryness in a glass capsule, and examined the saline residue with a glass ; but could discover no traces of any crystals of common salt. This experiment was repeated three times with greater quantities of the water ; but without any better success. I have no evidence, therefore, that Hartfell Spaw contains common salt or soda.

The preceding experiments show the presence of the following substances in this water :—

- | | | |
|--------------------|--|-------------------|
| 1. Sulphuric acid, | \| | 3. Oxide of iron, |
| 2. Muriatic acid, | | 4. Lime. |

B. Determination of the quantity of these ingredients.

1. 1000 grains of the water were evaporated to dryness in an eight ounce phial, with the precautions already described. The saline residue was partly red and partly white. It weighed 0.8 grain. But this quantity must not be considered as exhibiting correctly the saline contents of the water. For the iron which existed in the water in the state of protoxide had been peroxidized ; while a portion of the muriatic acid, and probably likewise of the sulphuric acid had been dissipated.

2. 1000 grains of the water were precipitated by muriate of barytes. The precipitate, when washed, dried, and ignited, weighed 0.815 grain: equivalent to 0.276 of sulphuric acid.

3. 1000 grains of the water were precipitated by nitrate of silver. The chloride of silver, when washed, dried, and fused, weighed 1.064 grain: equivalent to 0.269 grain of muriatic acid.

4. 1000 grains of the water were precipitated by ammonia. The precipitate was at first green; but became gradually yellow. After ignition, it weighed 0.34 grain: equivalent to 0.306 grain of protoxide of iron.

5. After several unsuccessful attempts to determine the quantity of lime, I adopted the following method: 2000 grains of the water were mixed with carbonate of barytes in a retort, and left for several days upon the sand-bath, exposed to a moderate heat. The whole was then thrown on a filter. By this digestion, all the sulphuric acid and iron were separated from the water. The muriatic acid was then thrown down by nitrate of silver, and its quantity determined. The liquid was now mixed with sal ammoniac, to get rid of any excess of silver, which might have been added. It was then filtered, evaporated to a fourth, and mixed with oxalate of ammonia. The oxalate of lime precipitated was washed and dried on the filter, without any artificial heat. It weighed 1.71 grain: equivalent to 0.583 grain of lime. Consequently, 1000 grains of the water contain 0.291 grain of lime.

Thus, it appears that 1000 grains of Hartfell Spaw water contain,

Sulphuric acid,	0.276 grain.
Muriatic acid,	0.269
Protoxide of iron,	0.306
Lime,	0.291
	1.142

Dr. Garnett, in his account of this water, says, it contains a quantity of alumina. To determine the accuracy of this statement, I precipitated 2000 grains of the water by ammonia, and digested the precipitate while still moist, in caustic potash. The potash ley was drawn off after 24 hours, and mixed with sal ammoniac. But no precipitate appeared. However, after it had stood a week, it had acquired a very slight opalescence. This may have been owing to the presence of a trace of alumina. But it would have been impossible to collect and weigh this minute portion, which could not amount to the 1000th of a grain. I am of opinion that Dr. Garnett mistook the lime contained in the water for alumina.

The sulphuric acid was undoubtedly united with the protoxide of iron. The muriatic acid must have been combined with the lime.

0.276 sulphuric acid are saturated by 0.2486 protoxide of iron, making 0.5246 grain of anhydrous protosulphate of iron.

0.269 muriatic acid are saturated by 0.2034 lime, making 0.4725 grain of anhydrous muriate of lime.

There remains unsaturated,

Protoxide of iron,	0.0574 grain.
Lime,	0.0875
	0.1449

If this surplus exists in the water, it must be in the state of carbonate of lime and of iron. But as I could not detect any carbonate in the water, I am rather disposed to ascribe these small excesses, amounting to about one-seventh of a grain, to errors in the experiments, owing probably to the filters. I had only a wine bottle full of the water, and it was all exhausted in the attempts made to detect common salt in it.

1000 grains of Hartfell Spaw water contain,

Protosulphate of iron,	0.5246 grain.
Muriate of lime,	0.4725
Sulphate of alumina, trace.	
	0.9971

And an imperial gallon contains,

Protosulphate of iron,	36.747 grains.
Muriate of lime,	33.098
	69.845

This is a very powerful chalybeate. Tunbridge Wells, the most celebrated chalybeate in England, contains only 2.75 grains of oxide of iron in the imperial gallon. The Hartfell Spaw contains 17.4 grains, or more than six times as much as Tunbridge water.

2. SECOND MOFFAT CHALYBEATE.

There is another chalybeate near Moffat, a specimen of which was brought me during the year 1825, by a gentleman from that neighbourhood; and another specimen of it was put into my hands by Professor Towers, in the summer of 1827. It was described to me as running down the face of the mountain in considerable quantity.

The water has a red colour, and a harsh astringent chalybeate taste. It reddens vegetable blues. Its specific gravity is 1.00965.

1000 grains, evaporated to dryness, left a red-coloured residue, weighing 11 grains.

It yielded, when analyzed nearly in the same manner as the Hartfell Spaw, the following constituents, from 1000 grains of the water :

Alumina,	0.495 grain.
Peroxide of iron,	3.345
Sulphuric acid,	6.191
	<hr/>
	10.031

These constituents constitute a compound salt analogous to alum, and composed of—

3 atoms persesquisulphate of iron,	37.5
1 atom sulphate of alumina,	7.25
	<hr/>
	44.75

Dissolved in 4507 grains of water.

There can be no doubt that this water comes from a decomposed alum slate. It is analogous to the liquid from which alum is manufactured in Yorkshire.

The imperial gallon of this chalybeate will contain—

Sulphuric acid,	437.559 grains.
Peroxide of iron,	236.410
Alumina,	34.984
	<hr/>
	708.953

Or,

Persesquisulphate of iron,	591.025 grains.
Sulphate of alumina,	112.726
Sulphuric acid in excess,	5.202
	<hr/>
	708.953

3. PETERHEAD CHALYBEATE.

I regret that I can give no account of this celebrated spring, except that the iron in it is held in solution by carbonic acid. I have never had an opportunity of seeing the water, and I am not aware that any analysis of it has been given to the public.

4. DUNSE CHALYBEATE.

There is a chalybeate spring at Dunse, in Berwickshire, which was examined many years ago by Dr. Home, Professor of Materia Medica in the University of Edinburgh. The iron seems to be held in solution by carbonic acid; and, if any confidence can be placed in Dr. Home's trials, its strength is nearly the same as that of Tunbridge Wells.

5. PORTOBELLO CHALYBEATE.

There is a pretty strong chalybeate spring at Portobello,

near Edinburgh, which I examined many years ago by means of re-agents; but without subjecting it to a rigid analysis. It contains carbonate of iron, sulphate of iron, and sulphate of lime, together with common salt. It contained the eighth part of its volume of free carbonic acid gas, and 1000 grains when evaporated to dryness left five grains of saline residue.

It is, therefore, a very strong chalybeate, and deserving of more attention than has been hitherto paid to it. I wish some gentleman resident in Edinburgh, and competent to the task, would undertake an analysis of it.

II. *On Irritation of the Spinal Nerves.* By THOMAS BROWN, M.D. Senior Physician to the Royal Infirmary of Glasgow.*

IN the following essay, I purpose to offer a few observations on the symptoms and treatment of some diseases of the spine, which are by no means of rare occurrence, but which appear occasionally to be overlooked or neglected.

I allude chiefly to those morbid affections of the spinal nerves so often met with in young females, and occasionally also, although much less frequently, in women of more advanced life, and in males.

In most instances, certainly, this irritated state of the nerves is not entitled to the name of serious disease, since the symptoms are not acute, and since they are easily removed or prevented; but when it is allowed to remain for any considerable length of time, it often produces nervous complaints and general bad health; and, of course, it becomes infinitely more unmanageable.

It occasionally happens, too, that this affection of the spinal nerves, even from its commencement, is much more serious in its nature, and instead of being local or strictly confined to one spot, extends to other parts of the spine, or even to distant organs, and assumes an appearance particularly distressing and obstinate. Still, however, as the symptoms which attend this more formidable disease arise from a local affection of the nerves, I have ventured to treat of it in this essay. This form is peculiar to females.

Although I have had numerous opportunities of attending to the symptoms and treatment of these affections, in the Lock Hospital of this city, as well as in the Royal Infirmary, and in private practice, yet I find that this essay must

* Five years since, viz. in January 1823, the following Essay, nearly, was read to the Medical Society of this city.

remain exceedingly imperfect. I trust, however, that the involved and vague nature of every subject connected with nervous diseases will serve as a sufficient excuse.

I find some difficulty in giving a name to this disease, but as it consists, perhaps, in a state of increased irritability in some of the spinal nerves, we may name it SPINAL IRRITATION.

It is proper to remark, in a very general way, that the complaints at present under consideration differ materially from some diseases which are exceedingly apt to be confounded with them, and which occasionally affect the spine along with spinal irritation. I allude to lateral curvature, and to inflammation of a portion of the spine, either from accident or from other causes. These diseases of the vertebræ are by no means uncommon at the age which is most liable to this other complaint, and instances do occur in which the two diseases are combined. In C. D., in particular, there was ultimately decided lateral curvature of the spine, as well as spinal irritation; and I have seen the same combination in other patients. I conceive that this fact may explain some of the anomalies of this perplexing disease.

After I have given some examples of spinal irritation, I shall mention two or three other cases, in which, as well as in that disease, the chief pain was felt at the sentient extremities of the spinal nerves, but in which the local disease in the spine appeared to be different from that which existed in the other complaints.

In the first place, I shall give an account of one case out of a great number, in which spinal irritation occupied its most usual situation, and was marked by its most common symptoms. I shall then notice a few instances in which it was more complicated and varied in its form, though it occupied nearly the same part of the spine. I shall afterwards detail some cases in which the morbid affection occupied some other than the common situation, and was attended by unusual symptoms; and I shall conclude with giving some general remarks on these diseases, and on their treatment.

Miss C. aged 17 (September 1822), of a robust make, and apparently in good health, for more than a year has complained of pain, situated below the left mamma. This has been fixed to one spot for nearly the whole time. It is a gnawing bruised feeling, increased materially by fatigue of any kind; and, after fatigue, it is attended with restlessness. It is relieved by reclining in the horizontal posture. It is not sore to the touch. The complaint has been treated by a surgeon in the country as a case of rheumatism. She has been bled and blistered for it, but without any good effect;

and at last it has occasioned so much anxiety in the minds of her relations, that she is brought to Glasgow, from a considerable distance, for the benefit of farther medical advice.

On examining the spine, it is found to be perfectly of the natural shape and appearance; but when pressure is made on it, about the 7th or 8th dorsal vertebra, she complains of a considerable feeling of tenderness, amounting even to pain; and she finds that the uneasy sensation shoots forward exactly to the affected part of the breast. She had not paid any attention to this tender part of the spine; indeed, she had no idea that there was any thing faulty there, till her attention was called to it by the examination.

After I saw her, she had a dose of physic; 10 leeches were applied to the pained part of the spine, followed afterwards by a small blister; and the horizontal posture was enjoined. She was nearly free of pain in a few days, and returned home, with directions to repeat the blister, and to avoid fatigue.

It would be needless to bring forward any other example of the most common form and site of this disease, than the one I have mentioned. From the journals of the Lock Hospital, and from my notes of private practice, I could, I am confident, quote 50 cases nearly similar. Such instances occur frequently in the experience of every medical practitioner. There are, however, several *varieties* in those symptoms which attend the disease, when seated, as in the former case, in the lower part of the dorsal vertebræ. I shall mention those merely that I have seen.

The site of the pain in the *breast* varies much. It is needless to mention, that it is occasionally in one side of the chest, occasionally in the other; but I am confident that it is much more frequently in the right than in the left. It is sometimes within a few inches of the spine, but much more frequently it is nearer to the sternum, and occasionally it is immediately under this bone. It is generally described to be a weary or bruised pain. It is seldom increased by the touch, but sometimes, though rarely, it is tender when pressed. It is usually, though not always, relieved or even removed by the horizontal posture.

The tender part of the *spine*, on the other hand, in a great number of instances, is not attended to. It is not thought of till the affected part of the back is pressed, or till a sponge dipped in hot water be applied to it. In either case, a very sensible pain is felt, which, especially when the sponge is used, is occasionally acute and continues for some time. In general, pressing the spine not only occasions pain in that part, but the pain penetrates to the affected spot of the chest,

thus distinctly proving the connexion between the two. It often happens that pressure on the spine occasions a feeling of oppression more than of pain in the chest.

The pained part of the spine, in general, does not exceed an inch in diameter, though it occasionally happens that the uneasiness extends either above or below the tender part, appearing to radiate from it as from a centre, sometimes to a considerable distance. This pain of the side, excited by pressure, is almost in every instance felt on the same side of the spine as the pain in the chest. That is, if the patient have pain in the left side of the chest, then the left side of the spinous process of the vertebra is more tender than the right, and *vice versá*.

There is seldom any fever with these symptoms, although I have repeatedly seen instances in which there was a considerable degree of febrile irritation, requiring bleeding and other evacuations.

Cough is not often present, although there is occasionally violent convulsive cough, very noisy, and not attended with any expectoration.

In a girl, a patient in the Lock Hospital, there was pain on the left side of the sternum, as if the part had been bruised. This was distinctly connected with a tender state of the spine below the middle of the dorsal vertebræ. Along with these common symptoms, there was severe pain and numbness extending down the left side of the abdomen near the spine to the groin, and down the thigh, following nearly the direction of the anterior crural nerve. There was also a considerable degree of febrile irritation.* In two other cases, along with the tenderness of the spine, there was an extended and superficial feeling of rawness and pain over one side of the thorax, which even extended to the abdomen. It was described as being a feeling as if the skin were abraded. This pain was permanent. Blisters, fomentations, and frictions, had been tried in vain. It yielded, though not till after months, along with the complaint in the spine, to the horizontal posture, and to an issue in the back.

In each of the instances already mentioned, this affection of the spinal nerves was situated nearly about the 8th or 9th dorsal vertebra, in which situation, as far as my experience proves, the disease is more frequently met with than in any other. It is obvious, however, that the symptoms attending a

* A. S., a girl of 17 years of age, is at present (December 1827) a patient in the Glasgow Royal Infirmary. Her case is a well marked one of spinal irritation, chiefly in the middle of the back; but besides this, there is numbness and weakness of one arm, nearly amounting to palsy.

complaint of this description will be quite influenced by the portion of the spine which is affected, since the nerves have different distributions and functions, according to their origin.

Next in frequency to the middle of the back, I have observed this disease in the upper part of the neck, about the 2d or 3d cervical vertebra.

In one very complicated case, there appeared to be two sets of symptoms, each of which radiated from a tender part of the spine, as if from a centre. In this young lady, Miss M., there was pain in the left side, and numbness and pain of the left arm and leg, distinctly connected with tenderness situated about the lower of the dorsal vertebræ. This partial palsy, however, was strictly confined to one side. There was neither the pain along the insertion of the diaphragm, nor the paralysis of both of the lower extremities, which frequently attend caries or protrusion of the spine. There was also, after some time, a similar state of the 2d or 3d cervical vertebra, which occasioned pain in the left side of the neck, commencing between the angle of the jaw and the mastoid process. The pain, with great acuteness, also extended upwards from the neck to the back part of the head, and even to the forehead, following the ramification of the 2d or 3d cervical nerve; and on several occasions, probably by some nervous communication or sympathy, it induced an alarming degree of torpor or insensibility, which continued even for days. These two sets of symptoms, connected with two different portions of the spine, were so much mixed together that it was difficult to determine which belonged to one irritated part, and which to another.

Posture alone was tried, but it was not found to be sufficient. As the paralysis of the arm and leg were the most urgent symptoms, issues were opened in the back, on each side of the pained part. The pain of the back and of the chest, with the palsy of the arm and leg, soon yielded. The headach, pain of the neck and shoulders, and fits of stupor, also disappeared, and it was presumed that the dorsal irritation had been the source of the whole disease. After reclining in the horizontal posture for three months, she was allowed to get up from her confinement. On the first, or at most, on the second day, however, after sitting up for a short period, it appeared that the cervical nerves were still in fault, the morbid symptoms arising from which had been merely suspended by the horizontal posture, but were again called into activity by the change to the erect position. The left side of the cervical vertebræ, near the head, again became acutely tender to the touch. The mastoid muscle on each side was rigid and projecting, so as forcibly to attract attention. The pain

extended downwards to the left shoulder, and even along the back, nearly to where the issue had been, so as to create the decided impression, in the minds of the lady and of her friends, that the whole disease had returned. The pain also radiated upwards, over the integuments of the head, even to the forehead. The neck was altogether so tender, that it was not easy to say exactly where the morbid affection was situated, for neither in this, nor in any of the former cases related, was there the slightest inequality in the form of the spine, as far as could be discovered by the touch. As this patient had a decided objection to the use of blisters, from repeated experience of their inefficacy in removing her complaints, and from feverish feelings which they excited, and as she had been materially relieved by the issue in the back, a kidney-bean was inserted into an incision on each side of the spine, near the head. These issues occasioned great irritation. The original pain, shooting up and down, continued, and to this were added nervous feelings, and at last she got into a state of insensibility, which continued for two days. It was necessary to remove the issues. Soon after, I ventured to apply a blister to the nape of the neck, but, contrary to former experience, it acted like a charm, and relieved her from a state of suffering which had continued for a month. It was now discovered that the dorsal vertebræ were quite free of pain, and that the pain which had extended to the back had merely radiated from the neck. After the blister healed, the affected portion of the spine seemed to be limited to a small spot, on the left side of the 2d or 3d cervical vertebra. The pain again returned severely, shooting up over the head. A blister now had no effect in removing it. It was so acute, that it was judged necessary to pass a cord through the part. In a few days, erysipelas commenced around the seton, but almost immediately the severe pain of the neighbouring parts yielded. The erysipelas extended over the head and neck, with smart fever. It then attacked the lips, and entered the mouth. The tongue became inflamed, swelled, and hard, so as to be nearly immovable. Immediately after, cough came on, as if the inflammation had extended down the windpipe to the lungs. This ended in phthisis pulmonalis, of which she died, after suffering in the usual way for several months. It was remarkable, that whenever the erysipelas commenced, the spinal irritation subsided, and she continued perfectly free of pain of back, or of any of her former ailments, till her death.

I have given an account merely of those symptoms which had been present in this patient for 18 months preceding her decease. She had suffered for a great length of time before

that period under various anomalous symptoms, many of which, I am confident, had been connected with irritation of one portion or other of the spine. At one time, caustic issues in the loins had been of great use in removing a number of uneasy feelings, which appeared to radiate from that part of the spine; but I am confident, that for a much longer period the neck had been in fault, and that various nervous feelings, with repeated fits of insensibility, followed by total blindness, which lasted for several days, were connected with that irritation, although she had so many other complaints, that it was difficult to say what was the leading disease. I am certain, however, that confinement to the horizontal posture had the effect of giving great relief, and of simplifying the disease. It rendered the symptoms so much milder, that a number of nervous sympathies were prevented, and in this way allowed the attention to be fixed on those points of the spine, from which, in my opinion, all her other complaints, except the last fatal one, emanated. It should have been remarked, that in this case the digestive organs were healthy. Her appetite and general appearance were good. Her catamenia were quite regular, till phthisis pulmonalis came on. It should be noticed, too, that there was not the slightest curvature or projection of the spine.

When the affection of the spinal nerves is situated about the middle of the lumbar vertebræ, it is apt to occasion severe pain in some part of the abdomen. I have seen it of a spasmodic nature, attended with flatulency, and occupying apparently the arch of the colon; and in one case, it seemed to be fixed in the caput coli. In these cases, the severity of the complaint may appear to call for powerful evacuations, from the apprehension that inflammation exists; whereas, if the attention be directed to the share which nervous irritation from the spine has in increasing the acuteness of the pain, very active depletion will not appear to be essential.

M. M. was a patient in the Lock Hospital, in May 1821. During her confinement under a mercurial course, she complained of acute pain nearly in the situation of the caput coli, with costiveness, and occasional vomiting, a quick pulse, and other feverish feelings. She was repeatedly bled, blistered, and purged, and took magnesia in large doses, with great benefit. This complaint, however, returned severely every two or three days; but at last it was ascertained that there was a marked pain about the middle of the lumbar vertebræ, and that whenever this part was pressed, the uneasiness extended forwards, exactly to the affected part of the abdomen. Attention was now paid to the spine. The part was cupped

and blistered, with immediate relief to the pain. The horizontal posture was rigidly enforced. She had afterwards a return of this complaint. The same means of cure were employed, and she got well, much more rapidly than when powerful evacuations were used. I should have mentioned, that the tenderness of the abdomen to the touch, appeared to confirm the idea that the part was in a state of inflammation.

In the following very complicated case of spinal irritation, there was not the least appearance of protrusion or of irregularity in the shape of any of the vertebræ; but there were three, or even four separate parts of the spine in fault. Sometimes one of these parts was in an irritated state, sometimes another, sometimes two of these were affected at one time; and according to the situation of the irritation, the symptoms varied.

A. R., aged 23, was admitted into the Lock Hospital, in May 1821. She had primary venereal complaints of little consequence; but besides these, she had completely lost her clear voice for several months. She could only speak in whispers. After being in the Hospital for some time, this symptom was attended with pain at the larynx, and with dyspnœa. It was ascertained that one of the upper cervical vertebræ was tender to the touch, and when this was pressed, the pain extended forwards, so as to increase the pain in the larynx. Leeches and a blister were applied to the neck, and in two days the pain of the larynx and the dyspnœa were removed, and she at the same time recovered her clear voice, which had been lost for three months.

It would be needless to enumerate all the minutiae which occurred for eight months in a most complicated case; but I shall mention merely the general results.—About the same time with the former complaints, the lumbar part of the spine was affected in two separate points. There was pain within the abdomen, extending upwards and downwards, which became severe whenever the spine was firmly pressed. There was also pain in voiding urine, pain in both groins, palsy of one lower extremity, and at last complete retention of urine, so as to render the use of the catheter necessary for three weeks. These last symptoms seemed to be connected with a different part of the spine from that formerly mentioned, since pressure on this other tender portion of the spine excited the pain in the groin and in the urethra. The retention of urine returned occasionally during the eight months she was a patient in the Lock Hospital.

At other times, one of the dorsal vertebræ was affected, with the usual well-marked pain in the thorax, and with violent pain in the stomach and abdomen. At last, the neck

became again irritated, and soon after that the head. She was quite deranged, requiring the strait-jacket. She then became comatose for some days. She recovered from this state, by bleeding and blistering. For a time she remained quite blind of both eyes, after that of one eye; but ultimately she recovered the use of both. The catamenia now returned profusely, after having been suppressed for a year. There was also the discharge of much coagulated blood from the uterus. After this she gradually recovered strength, and was dismissed on the 3d of December almost well.

These various affections, all immediately arising either from disease in the spine or in the head, returned more than once, and they gave rise to a strange combination of nervous and other complaints. Copious bleeding, blistering, caustic issues in two separate parts of the spine, purging, and other means, were necessary at the time, and occasionally they were of service. These complaints ultimately subsided, after the return of the menstrual flow, which had been suppressed for a year.

Nearly allied to the case of A. R. is that of C. D., though it differs in some respects. In this girl, there was decided lateral curvature of the spine, though not to any remarkable degree. She was admitted into the Lock Hospital, in July 1822, with primary venereal sores. She had a singular pink complexion, which augured some peculiarity of constitution. She was easily flushed and made feverish, but was in a tolerably good state of general health. Her catamenia were quite regular, and in this respect she differed materially from A. R.*

She soon began to complain of pain in two separate parts of the spine. *First*, in the 9th or 10th dorsal vertebra. When this was pressed, the pain extended up the spine, even as far as the head. She had also occasionally a burning shooting pain in the head. *Second*, in the 2d or 3d lumbar vertebra. This was really a very severe complaint. The pain extended forwards to the edge of the ribs on the left side, and down the outside of the thigh, following the distribution of the external cutaneous nerve of the thigh. There was also a painful feeling of numbness of the whole of the left lower extremity, producing complete lameness. These symptoms, in some respects, resembled nephritic pains, but there was no stomach complaint, nor apparent disorder of the urinary organs. She

* I may here mention, though it is not much connected with this subject, unless to prove the peculiarity of her constitution, that although her bed was placed in an airy and large ward, and close to a window exposed to the west, she soon took hospital gangrene. It attacked a boil on the arm. This made rapid progress, and was attended with all its usual characters. This sore had never before appeared in the Lock Hospital.

was fixed to one posture in bed by this last complaint. The slightest attempt to move was agonizing. By various means, these complaints were materially abated; but on the 24th of November, when confined to bed in the horizontal posture, a new part of the spine became irritated. She complained of pain in the right side of the third cervical vertebra, extending down the neck, which was acutely tender to the touch, to the top of the right shoulder, and along the arm to the wrist. This pain also extended upwards to the crown of the head, on the same side. It did not affect the left side, either of the neck or head. She described this pain as more severe than any she had ever before felt; and even worse than the burning pain of hospital gangrene. The pain was always present, but the severity of it increased five or six times through the night, and during this exacerbation, which continued for about fifteen minutes, she became quite blind. The sight returned gradually, with the appearance of luminous stars floating before her. After this new pain attacked her, she vomited, with a bitter taste, every thing she swallowed, and even with such straining, as to be mixed with blood. By copious bleeding, the severity of these symptoms abated, though the vomiting occasionally returned. A seton was passed through the neck.

It is worth remarking, that by the report of the 14th December, it appears that she and her fellow-patients observed that she had an unusual degree of rigidity and projection of both of the mastoid muscles, and that this spasmodic action preceded the attack of vomiting, and the increase of pain down the shoulders.

On the 27th of December, the day after a number of leeches had been applied to the neck, on the idea that the vessels of the spine were in an enlarged state, she became much worse. The pain spread over all the head, with flushing of the face. The stounding pain in the head appeared to threaten an effusion on the brain. Erysipelas came on over the face. The cord began to discharge, and she became very materially relieved.

This, then, is another instance of material relief, arising, in a severe complaint of this description, from an attack of erysipelas. It may be remarked, that at different times, whenever the irritation in the neck was increased, she rejected from her stomach any thing she had swallowed. This, however, in general, was merely eructation without nausea; though occasionally there was nausea and vomiting, with severe straining.

This patient at last recovered so much, that she left the Hospital in a state of moderate ease. Her back was weak,

and there was distinct lateral curvature of the spine, though not to any great degree.

Remarks.—I am fully sensible of the difficulties which surround every inquiry where the nervous system is concerned, and of the little chance that exists of our ever being able to form views on this subject, materially more correct than those which we possess at present. But although the precise nature of the connexion that exists between these nervous fibres and the other parts of the animal system, be quite unknown, yet we are certain that this union is absolutely necessary for sensation, for motion, for the performance of every function, and, of course, for the existence of life. No one doubts that all those necessary actions, which are constantly going on in the viscera of the thorax and of the abdomen, as well as in every other part of the body, are immediately and necessarily under the influence of the nerves.

To guard against those dangers, which would arise from the interruption of this necessary influence of the nerves, there are no doubt numerous communications and networks; but still we are certain, that each individual nerve is of some use, either of greater or of less importance.

We can therefore easily conceive that pressure, or any other irritation, applied to the spinal nerves, should produce very sensible effects, either in occasioning pain, or in deranging the healthy action of the muscles, or of the viscera, to which they are distributed. We find accordingly, that in the cases related, such derangements did result from those causes.

The highly important results which have followed from the brilliant discoveries of Mr. Charles Bell, on the functions of nerves, have already thrown much light on many points connected with the nervous system, which before his time were involved in obscurity. It is exceedingly probable that these cases afford examples of diseased states of the two sets of spinal nerves, and that future experience may enable us to arrange these into separate classes. I merely wished, on the present occasion, to place in contact with each other, the different varieties of these diseases, chiefly in females, which have occurred in the course of my own practice, within a short period, as a sort of nucleus around which, in future, I might dispose other examples.

In several instances, in males, I have seen a disease in some respects similar to the one which is here named spinal irritation, arising, as in that complaint, from irritation applied to the origin of a single nerve at the spine, and corresponding also with it in several other particulars. This, however, in males, is a rare disease, and when it does occur, we can

generally, though not always (since it occasionally arises from acidity of the stomach or of the duodenum) trace it to curvature of the spine, or to inflammation resulting from some injury which the spine has sustained.

These affections of the spinal nerves appear to divide themselves into two classes:—

1. Those in which there is merely a morbid sensibility of a single nerve.

2. Those in which there is a more general and constitutional irritability, in which the irritation is apt to affect different parts of the spine in succession, and to occasion a whole train of singular symptoms.

This last form, I believe, is confined strictly to females, the other is occasionally met with in males. Those two forms of spinal disease, though generally separate, are occasionally found to be so much combined, that it is difficult to say what symptoms belong to one form, and what to the other.

A great proportion of the examples of the first class which I have seen, have been in female patients in the Lock Hospital. Perhaps nine-tenths of the inmates are young women, between 15 and 20 years of age. At this important period of life, when the constitution has only lately changed, and when the growth of the body is perhaps more rapid than at almost any other, it is obvious that intemperance in all its forms, and want of proper air and exercise, will have most material influence in deranging the health. A great number of these females, many of them slender and delicate, and without proper clothing, are exposed to the inclemency of the weather at all seasons and hours, perhaps in a state of intoxication; or not unlikely, they remain at home ruining their health by hard living, and suffering as much by confinement to a close room, as they would by exposure to cold. Under the operation of these various noxious causes, we are not to wonder if the spine should frequently become affected, and we accordingly find that a number of those females who are admitted for the cure of venereal diseases, suffer from affections of this nature. This complaint is rarely met with in country girls, whose muscles and solids are invigorated by their mode of life. We can easily conceive, indeed, that the muscles arranged along the spine should be most materially strengthened by bodily exercise, since on every exertion they must be constantly and powerfully in action, in altering or even in preserving the erect position of the body.

I have to repeat what was formerly briefly observed, that I consider these cases as very materially different from

those which are known to arise from inflammation or caries of the vertebræ. These latter diseases are met with more usually at a much earlier period of life than the former. They occur perhaps with equal frequency in either sex. With them, there is often paraplegia, or perhaps a rigid contraction or spasm of the muscles of the lower extremities. The urinary bladder, or bowels, are frequently torpid or paralytic. The spine protrudes or is irregular in its shape, and there is a feeling of debility, or of pain, extending along the insertion of the diaphragm to the ribs, which is very characteristic of a diseased vertebra in the most usual situation. In the disease, however, which forms the subject of this essay, and which we have named Irritation of the Spinal Nerves, there is no alteration in the shape of the spine, as far as can be observed by the eye, or by the touch. There is rarely any paralytic tendency in the limbs, bladder, or bowels; and if there should be any weakness of the extremities, which is rare, this is confined to one side of the body. It is besides, in general, a disease of greatly less danger than the former, though an extreme case of the second class is certainly a very tedious and formidable complaint.

In this disease of the spinal nerves, I have rarely seen the pain of the chest in both sides of the thorax at one time; and it differs quite from that feeling of pain or of fatigue, which extends across the whole thorax, where the diaphragm is attached, and which is so frequently present when the vertebræ are inflamed or carious.

Since these two states of the spine differ so much from each other, we have next to inquire what is the nature of this difference.

I conceive that in the carious spine, the morbid symptoms arise from compression or inflammation of the whole spinal cord; whereas, in this other disease, the spinal marrow is uninjured, but we have some degree of pressure applied to the spinal nerves, as they issue from the vertebræ. We accordingly find that in cases of protruded spine, we have all those symptoms which arise from injury of the whole mass of the spinal marrow; whereas in the other disease, in its most simple form, we have only those complaints which arise from the compression of a single nerve. We have merely pain at the sentient extremity of this nerve, somewhere in the thorax or in the abdomen; and pain in the back, occasioned by the irritation of those nervous twigs which have the same origin as the larger branch, but which pass backwards to be distributed on the muscles on the posterior part of the spine. In cases of longer continuance, or of greater irritability, from

nervous communications with the great sympathetic nerve, or with other nerves in the thorax or in the abdomen, various distant sympathies and anomalous nervous feelings are brought into action; and, since the proper action of every organ depends on the influence of the nerves, ultimately the organs of digestion, and the various glands in the abdomen, are deranged in function, and at last in structure. We accordingly often find that such changes are met with in severe cases of this disease.

The frequency with which this painful affection occurs in delicate constitutions, where growth is rapid, can perhaps be explained if we keep in mind the complex and varied structure of the spine. This organ is composed of a series of joints, furnished with numerous ligaments and muscles; for we are to consider each bundle of muscular fibres as a muscle, with an independent action, although the anatomist brings whole classes of them under one name. There are many separate muscles, for instance, comprehended in the multifidus spinæ, and in the sacro-lumbalis. The motions of the spine, too, are frequent, and it has, independently of occasional and great exertions, the weight of the upper parts of the body to support. It is apt to suffer from sprains, and from wrong posture of any kind. Even when lying in bed, it is not exempted from the effects of over-exertion, or of wrong position. How often do we find these complaints brought on in delicate girls, or increased by the unequal surface of a feather bed, or of a bolster which is too high and firm! Even in many adults, who are by no means feeble, we find that a soft feather bed occasions pain in the back and in the neck; but if a feeble growing girl be confined to bed by any cause, the spine will be much more liable to become sprained, or perhaps even misshapen, from any inequality in its surface. It is reasonable to suppose, that from any such cause, especially if frequently repeated, or long continued, one or more of the ligaments or muscles of the spine should be stretched or strained. A slight inclination to one side, probably only at one joint, will be the effect, and in this way the nerves issuing from one side of the spine, surrounded with a bundle of fat and cellular membrane, will be compressed and irritated.

That this slight inclination to one side is the cause of the pain, in the *simple form* of the disease, appears to be proved by the fact, that only one of the spinal nerves is affected at the commencement of this disease. There is pain merely in a small space, on one side of the thorax, and there is more uneasiness on that side of the spine which corresponds with this pain, than on the other. This distinctly proves the

limited nature of the disease at first. Most likely, after some time, some degree of inflammatory action may result from the pressure on the nerve. Lymph will be effused, and thus the pressure on the nerve will be increased. Besides, the muscles and ligaments of the spine become more strained. The intervertebral cartilage on one side becomes diminished by pressure and by absorption; on the other side it is proportionably thickened. We may conceive, therefore, that after a certain time, even some degree of irregularity in the shape of the spine may be occasioned. The disease becomes more serious, and more difficult to remove; and a greater number of nervous sympathies are brought into action.

As a farther confirmation that this view of the nature and origin of this most common form of the disease is correct, it is observed, that at the commencement the pain of the breast goes off whenever the patient lies down in the horizontal posture, but that after the complaint has been fixed for some time, a change of posture alone does not so certainly relieve the uneasiness in the breast.

We have found that the affection of the spinal nerves occurs much more frequently in the lower of the dorsal, or in the upper of the lumbar vertebræ, than in any other situation; and by looking to the form of the skeleton, we can readily account for the greater liability of this part of the spine to this disease. The ribs, united to the dorsal vertebræ and to the sternum, form the whole chest, as it were, into one piece. From this union of the different parts, we observe that there is but little motion in that portion of the spine which forms the posterior part of the chest. On the other hand, the lower lumbar vertebræ are larger than those above, and are fortified by strong muscles. Besides, the motions of the lower lumbar vertebræ are very limited, from being fixed to the pelvis, which may be regarded as a firm support. There is, therefore, a greater extent of motion in that portion of the spine which is placed between these two fixed points, than in any other, and we accordingly find that affections of this nature are much more frequently met with about the lower dorsal, or upper lumbar vertebræ, than in any other part. This weak and movable portion of the spine has also to support the whole weight of the upper part of the body. It may be considered as the centre of motion.

The nerves of the second or third cervical vertebræ also frequently suffer from diseases of this nature. This part of the spine is nearly similarly situated as the upper part of the lumbar vertebræ, since we are here to consider the chest as the fixed point, corresponding to the pelvis. To this the

lower of the cervical vertebræ, surrounded by strong muscles, are fixed, while the upper part of the neck has a more free and unrestrained motion.

It is exceedingly probable, too, that the abrupt shape of our bolsters and pillows increases the disposition to disease at this part of the spine.

We shall now revise the various cases, and make some observations on the different symptoms which occurred in each.

When the disease is fixed in its most usual situation, namely, near the lower part of the dorsal vertebræ, the pain is felt at a distance from the spine, in some part of the thorax. Occasionally, however, there is merely a feeling of oppression in the chest. This distant pain is certainly connected with the distribution of the sentient extremities of the affected nerve; for, in other instances, irritation of the trunk of a nerve is felt where the nerve is ramified. In many other instances, then, in these affections of the dorsal nerves, we find that when the origin of a nerve is irritated, the pain is chiefly felt at the sentient extremity of it; and a knowledge of this fact is frequently of great use in rendering our practice efficient. We find, indeed, that local applications to the seat of the pain have nothing but temporary effect; whereas, when our attention is directed to the distant cause, we often succeed by the most simple means.

Some time since, I was requested by a medical friend in town, to visit, with him, the captain of a coasting vessel, who ten days before had received a severe blow on one of his thighs. The pain and shock were considerable at the time; but he was out of bed, and apparently recovering, till four days before I saw him. Then he complained of a burning feeling in the groin of the bruised thigh. This had become very acute, and was attended with spasms, apparently of the sartorius muscle, excited by the most trifling motion. He was literally fixed to one posture in bed, from the agonizing pain and spasm, produced by any attempt to move. Leeches in great numbers had been applied to the groin. He had been freely bled, and had used opium, laxatives, &c. without any relief. On examining the spine near the sacrum, a considerable degree of tenderness was detected there, and when this was touched, the pain extended down to the affected groin. Leeches and a blister to the sacrum gave immediate and complete relief. In fact, one of the lumbar nerves, distributed to the sartorius and neighbouring muscles, was irritated and inflamed, at its origin from the spine. The

pain was felt at the sentient extremity of the nerve ; but local means, applied to the spine, were alone efficient in removing the complaint.

When there is merely the feeling of oppression in the chest, this may perhaps be connected with pressure applied to the nerve of motion, instead of the nerve of feeling ; since, from the experiments of Mr. C. Bell, we know that the two nerves which arise from each part of the spine have different functions. The relief of this pain by the horizontal posture is readily explained, by the removal of pressure from the trunk of the nerve, as it passes between the vertebræ.

It has been remarked, that the pain which is perceived when the back is pressed, is connected with that branch of the spinal nerve which passes backwards to be distributed to the muscles of the spine. I have seen several instances in which all the symptoms of this disease were present, with the exception only, that there was no pain when the spine was pressed. There was local pain in the side, increased by fatigue, and relieved by posture, and applications to the spine. In these cases, I was inclined to theorize, in supposing that the nerve of feeling which passes forwards was irritated ; but that the branch which passes backwards to the muscles of the spine, was free of irritation. The complaint which forms the subject of this essay is often so strictly local, that this supposition does not appear to me to be unreasonable.

Occasionally disorder of the stomach and bowels is joined to this affection of the spinal nerves, and appears to arise from it, since it yields, if the irritation of the spine is removed, and returns whenever this irritation is renewed. On the other hand, however, I have seen the spinal irritation, with pain of the breast, yield at once to the removal of a load from the bowels by an active purgative, showing distinctly the immediate connexion that exists between the spinal nerves and the intestines ; and proving that, on some occasions, the affection of the spine disorders the digestion, but that, in other instances, indigestion is the primary disease, and the spine merely sympathizes with it. In several instances, there was an uncommon degree of acidity of stomach joined to this disease. This had been treated without effect in the way that was effectual after attention was paid to the spine, as well as to the stomach, so that I was disposed to conclude that the excessive acidity was connected with the spinal irritation.

We occasionally meet with examples of dry, loud, convulsive cough in females whose spinal nerves are irritated. I believe, however, that this cough is not occasioned directly by the irritation of the spine, but that the stomach and bowels are

deranged by this irritation, and that the cough is the effect of this derangement. I form this conclusion from a number of instances of nervous or convulsive cough, which have occurred to me, in most of which, though not in all, a fault in the digestive organs appeared to be the immediate cause of this symptom.

In irritable constitutions, this local complaint is often the cause of a whole train of nervous feelings and sympathies, especially if, from inattention to the source of the disease, an attempt is made to invigorate the body by exercise. It is plain, that in such cases, we can scarcely expect to remove these symptoms, unless we attend to their origin, and that exercise, instead of removing the complaint, will increase and confirm it.

We find that many painful affections can be referred to pressure or irritation, applied to the trunk of a nerve at a distance from the pain. Some of these pains are confounded with rheumatism, or they get the vague name of nervous pains. It is of great consequence, to be aware how frequently these complaints depend on a distant cause. When numbness, and want of power of moving the arm or leg, are joined to this disease, we conclude that these symptoms arise from the local irritation of the nerve, spreading to communicating nerves; not from any general affection of the head or of the spinal marrow. At least, in several instances that I have seen, I have not been able to discover any other cause. The palsy yielded to the treatment of the local disease in the spine. Paralytic complaints of this description afford a much more favourable prognosis, and are surely very different from that paralytic affection, which arises from injury of the whole of the spinal marrow, or from that which depends on injury of the brain.*

* Since writing the above, I have had one well marked case of spinal irritation in the Infirmary, (A. S., a girl of 17 years of age,) in whom there was, in addition to the usual symptoms of this disease, palsy nearly complete of the left upper extremity. The arm was numb, and she could only move one of the fingers. She also lost the power of swallowing any thing but liquids. These two symptoms remained, though almost every other yielded to the means employed. She had no pain in the head at this time, at least no fixed pain, nor any apparent affection of the mind. At one time, the sight was dim and the pupils dilated; but I conceived that these, as in other cases, were owing to spinal irritation of the nerves of the neck, not to any affection of the brain. The obstinacy of these symptoms, however, (for the arm had been paralytic for six weeks), induced me to apply a large blister to the head, and certainly immediately afterwards the local palsy, the dysphagia, and the other symptoms of spinal irritation, which were lurking about her, yielded completely, and she very soon left the Hospital nearly recovered in strength, after having been three months a patient in the house. From the result in this instance, I shall certainly in future, in these anomalous cases, direct my attention more particularly to the head, and, if obstinate,

We occasionally observe singular pains and feelings, and spasmodic twitches, about the neck and shoulders, arising, no doubt, from the nervous communication of these parts. I recollect to have seen two cases in which the cervical nerves were affected, in which the prominent feeling was that of a hair, stretched across the throat, occasioning much irritation and frequent inclination to retch.

Some years ago I attended a medical gentleman, whose symptoms depended on local irritation of the nerves of the neck, by a cause different from spinal irritation, but corresponding with it in producing action at a distance. In this gentleman, there was a most violent convulsive action of the right trapezius muscle, occasioned by a small tumour, irritating the accessory nerve of Willis, as it passes through the sterno-mastoid muscle. This spasmodic action or convulsion began in the right trapezius muscle, but it set other muscles into action, and the effect was most singular and distressing. He shrugged up his shoulders with such force and frequency, that in a short time he became quite exhausted by the painful exertion. This disease continued for many years, occurring at uncertain times, both day and night, rendering confinement to the house, large doses of opium, and retirement from business, absolutely necessary. At last it gradually subsided; and I believe that this gentleman has been free of the complaint for several years.

There is no part more frequently pained, from nervous irritation, than the pericranium or scalp. The pain is often acute, and if we examine the parts minutely, we find that it

have no hesitation in bleeding and blistering this part. The head and the spine are so immediately connected, that affections of the head occasionally imitate those of the spine. Dr. Baillie, for instance, has ascertained, that paraplegia, in many examples, may depend on an affection of the head; and on the other hand, we occasionally find that a disease of the spine produces derangement of the functions of the brain. From this analogy, and from what occurred in the case of A. S., I would have no hesitation in these cases, in directing my attention more particularly than I have formerly done to the head. We know that fluids on the surface of the brain readily pass into the theca vertebralis. In a case at present in the Infirmary (H. K.), the head was affected to an alarming degree with stupor, tinnitus aurium, and pain, for ten months. The primary disease, however, appeared to have been seated in the lumbar spine, and accordingly all these affections of the head gradually yielded to an issue on the diseased vertebra. I therefore again repeat, that in these cases of spinal irritation, we ought to be aware that the whole train of symptoms may depend on disease of the head, as well as of the spine. The affection of the sight, so common in these complaints, will be well explained by this view of the subject, and perhaps even the partial spasm of the muscles fixed to the spine, which we shall afterwards point out as being much connected with these ailments, will receive illustration by the same idea.

shoots along the various nerves which are ramified over this tendinous membrane. If we press immediately behind the mastoid process, the pain passes upwards along the cervical nerve which takes that direction, and ramifies even as far forwards as the forehead. The frontal branch of the fifth pair of nerves is often similarly affected, from cold or from disorder in the stomach; and the temporal branch of the fifth pair, when the salivary glands are irritated by mercury. I allude chiefly, however, to the first mentioned of these painful affections of the scalp; viz. that which shoots upwards from the neck, and passes behind the mastoid process over the head. This is a frequent complaint in delicate girls, and is occasionally acute. It often takes its origin from irritation at the origin of the nerves between the vertebræ, in consequence of the sudden bend of the neck from lying on a high bolster, and is remedied by very simple means. It is occasionally rheumatic, and is owing to exposure to cold. Sometimes this pain of the neck and scalp is peculiarly painful and obstinate, as in some of the cases mentioned.

In a great number of these cases, in which the cervical nerves are in a state of irritation, the sight is for the time injured. When the pain shoots from the neck over the head, there is generally either great sensibility, or in other instances great insensibility to light, with dilatation of one or of both pupils. The excessive sensibility of the eye is much more frequent than the opposite state, and it often becomes necessary in these cases to exclude the light entirely. I know of one young lady, who for years has been obliged nearly completely to darken the room; and I recollect of another similar instance, in which there is now a complete recovery. Indeed a great proportion of the cases suffer pain from the exposure of the eye to light. This sensibility and insensibility to light are apt to alternate in the same individual. In the lady mentioned above, as being much disturbed by excess of sensibility, the opposite state occasionally prevails, when every object looks dim and diminished in size, as if it were placed at a great distance. Some of these patients occasionally have the sensation of a green or of a blue light before their eyes; and they remark, that the intolerance of light is most remarkable, when the irritation in the neck is most severe.

It was stated, that in one case the pain was followed by fits of insensibility, which even remained for days.

It was also mentioned, that in another case, a severe attack of pain of the scalp was followed by complete blindness. This state continued for some time; after which it subsided. These fits of pain and blindness occurred even so frequently as five

times in the course of the night. In a young medical gentleman, who consulted me some time since, the pain of the scalp had nearly the same direction as in the former cases. It came on in fits, and during these he became blind. After some time the severity of the pain went off, and along with it the affection of the sight.

It was formerly remarked, too, that Miss M. and A. R. were completely blind for some time. It appears, therefore, that this symptom is not unusual in cases of spinal irritation. I cannot, however, explain, by any nervous communication, how this should happen. I can only say, that I have observed partial or total blindness in several cases, in which the upper cervical nerves were in an irritated state; and from the frequency of its occurrence, I must suppose that it was connected with this irritation, and arose from it.

As this symptom occurred, in general, during my absence, I am not sure whether, in all the cases, the pupils were dilated or not, during the state of blindness. In A. R.'s case, and in that of A. S. they were dilated, and I presume that such was also the case in the others, as that was the character of the eye when I saw it next day.

In at least two of these severe cases, there was almost immediate vomiting of every thing that was swallowed. Perhaps eructation is a better term than vomiting, since there was nausea only occasionally. This symptom was most likely connected with irritation of the 8th pair of nerves, or with that of the phrenic. The food was eructated quite unchanged in its appearance. From having seen this symptom present during the acute stage of these diseases, and subside whenever the irritation abated, I should feel inclined to examine the spine carefully in other instances, where eructation of the food or vomiting was a prominent symptom. In the case of C. D., every sort of food for days together was almost immediately rejected from the stomach.*

In taking a review of the different cases, which have been brought forward, there appear to be two marked varieties. We have, in the first place, a simple form of the disease, of very frequent occurrence, and easily removed, in which the

* I have lately seen two cases of spinal irritation, in which vomiting was a very prominent and urgent symptom. In the case of E. M., who is still (1828) a patient in the Infirmary, there was constant and even alarming vomiting of every thing swallowed, joined to irritation of various parts of the spine, and ultimately of the neck. This last was relieved by a blister, but the vomiting was not. It resisted anodynes, blistering the stomach, &c., for weeks, but at last it yielded at once to an anodyne enema, which was occasionally repeated to prevent the return of the vomiting.

morbid affection seems to be limited to a minute space. There is pressure merely of those nerves which pass out between two of the vertebræ. But there was another form of spinal irritation, which varied considerably from the other, and was infinitely more serious and obstinate. I allude to that more extensive tendency to disease, which has been observed in several of the cases.

Even in these, however, although the irritation wandered from one part of the spine to another, still the morbid symptoms at the time seemed to be confined to individual nerves, as they issued from the spine, not to be extended to the entire body of the spinal marrow. In several instances, these two complaints were so much combined, that we were unable to separate them, and we had only to give the history of the case, with all its anomalous symptoms.

We may entertain different notions regarding the nature of this last singular form of spinal irritation, and it need scarcely be remarked, that it is of great consequence that the theory we form should be correct, since our practice may be materially influenced by it.

1. We might suppose that it is connected with a plethoric or varicose state of the blood vessels of the spinal marrow. It is accordingly more frequently observed at the monthly period in women, than at any other time, and at this period we know that the blood-vessels of the lumbar region, at least, are in a distended and active state. We know, too, that this disease is remarkably moderated by local bleeding. The local and limited nature of the irritation, however, induces us to conclude that this theory is not the correct one. We find that it is confined chiefly to two parts of the spine, viz. to the middle part of the back, and to the upper part of the neck; and in these situations, frequently even to a single nerve with its ramifications. If, however, the disease depended on a plethoric state of the whole spinal marrow, or of a part of it, we ought to have an affection, much more general and extensive.

2. We might say that this disease was connected with relaxation of the muscles and ligaments of the whole spine, but that this weak state of the solids would be chiefly perceived in those parts where the motion is the greatest. This notion, however, will not account for the phenomena of these diseases. We often find great emaciation and debility of all the solids, without there being any tendency of this nature. In short, the disease is not confined to states of debility and emaciation. A. W. suffered severely from this disease, at last she was attacked with typhus fever, and was much reduced

in strength by it. The spinal irritation went off whenever the fever came on, and did not return.

It is exceedingly probable that there may be some slight inequality in the position of one vertebra on another, as appears to take place in the more common and mild form of irritation of the spinal nerves; but still in this more serious form, there seems to be something added to this, which leads us to the supposition;

3. That the disease depends chiefly on peculiar sensibility and irritability of the spinal nerves. We can easily conceive that this should be chiefly, or perhaps solely felt, at those parts of the spine, where the motion of one vertebra on another is the greatest, viz. at the loins and in the back. In the sound and healthy state of the nerves, the slight pressure occasioned by the motion of one of the vertebræ on another, is not sufficient to occasion pain; but when the nerve is too sensible, then this same pressure is sufficient to produce pain and irritation, varying according to the excess of sensibility. In very irritable constitutions, even the slightest motion may excite violent effects. In the cases described, indeed, the pain was occasionally very acute, even independently of motion; and was most likely connected with the spasmodic action of the muscles of the spine, drawing it to one side, and in this way increasing the pressure on the irritable nerve. In confirmation of this notion it may be stated, that in several of the cases, I have observed a marked stiffness and spasmodic state of the muscles of the neck. In two cases, it was remarked that the mastoid muscles, at one time, were rigid and projecting like boards.*

The more simple form of spinal irritation is not entirely

* Within these few weeks (January 1828), I have had two cases of serious disease from spinal irritation in the Infirmary here, and one in private practice, in which the pain, shooting from behind the mastoid process over the scalp of one side of the head, appeared to be connected with spasmodic stiffness of the mastoid and other muscles of the neck of the same side. This connexion seemed to be quite decided in these cases of spinal irritation of the neck; but it is not so easy to ascertain whether or not partial spasm of the muscles, arranged along the spine, exists in cases where the dorsal or lumbar spine is irritated. I have not as yet paid attention to it in these situations; but from the analogy with similar affections of the cervical nerves, I conceive it probable that it does exist. An irregular practitioner in England is celebrated for his success in the treatment of these cases. His practice consists solely in long continued friction of the affected parts of the spine, joined to posture. Now, it is easy to conceive that such practice may have influence in abating a partial spasm of the muscles of the spine, and that the regular surgeon may improve his treatment of these complaints by following a similar plan.

confined to females; but it is much more frequently met with in them than in males. It is connected with the more delicate frame of females, with their mode of life, their want of exercise, and with certain peculiarities in their dress and education. Occasionally, however, we do meet with it in males of delicate constitution, or in those who have strained, or otherwise injured the spine.

The other form of spinal disease, I conceive, is quite peculiar to females. It is a most formidable and obstinate complaint, and depends most probably on the peculiar action of the uterine system. In one of the cases related, and in two at present (1827) in the Infirmary, the catamenia were suppressed for a long time, and in the former these complaints went off whenever the catamenia re-appeared, which was profusely. In most of the other examples, however, the catamenia were quite regular, so that there is no necessary connexion between amenorrhœa and this disease. Still, however, it is so purely a female disease, that I conceive some unknown change in the uterus must be present; perhaps a plethoric state of that viscus, with a similar condition of the blood vessels of the spine.

There are several other diseases different from those which have been mentioned, in which also the spinal nerves are irritated. I shall take merely a short notice of these.

In painful affections of the throat, we often find that the cervical vertebræ are tender, and that there is a distinct connexion between the pain of the one and the tenderness of the other. When we touch the spine, the pain extends forward to the throat. This is remarkable in cynanche maligna, in which disease the patient often complains severely of the neck, and in unfavourable cases there is great stiffness, as well as pain.

In several instances of ulcerated sore throat from lues venerea, or from mercury, I have seen this pain in the neck a very prominent symptom; and when the neck was touched, the pain extended forwards to the throat. In cases of this description, a blister applied to the nape of the neck is more effectual than to the throat. The propriety of applying a blister to the nape of the neck, in these cases, should probably be determined by the presence or absence of pain in that part. Where this is present, I have seen the most marked improvement follow the blister.

I have repeatedly seen a very painful affection extending from the 3d or 4th dorsal vertebra, forwards below the scapula, and down the arm. The pain is felt entirely in the arm, but

when we press on the spine between the scapulæ, there is pain of the spine, distinctly connected with, and increasing the pain of the arm.

In one of these cases, H. L. (December 1823), this pain totally prevented sleep for several nights. It affected the left mamma, and the whole of the left arm. When pressure was made near the spine, the pain extended through all the affected parts. Whenever a small blister near the spine began to rise, the pain was immediately removed, and did not return. I have seen many similar cases, in some of which percussion, applied near the spine, speedily removed the pain.

Pains in the spine, nearly allied to the subject of this essay, are frequently connected with the uterus, either during the state of menstruation or in diseases of that viscus. These are usually about the 2d or 3d lumbar vertebra. Pains in the back are well known to be frequent, during the monthly period in women, and we often at the same time observe severe spasmodic affections, in some part of the abdomen, most usually of the arch of the colon or of the caput coli. I have often been able at once to trace these pains to irritation of the spinal nerves, by the usual examination of the spine. Immediate relief was generally attained by a blister of a minute size, or some stimulating application made to that part.

During my attendance on the Lock Hospital, I saw repeated instances of inflamed uterus, apparently connected with the peculiar profession of the patient, and in each of these, there was a very decided and marked affection of the spinal nerves. In these patients, the os uteri was prominent, hard, and acutely painful to the touch, and the connexion between this part, the spine, and the groins, where the round ligaments terminate, was rather singular. In the case of J. S., who had acute hysteritis, when the pained part of the spine was pressed on the right side, the pain extended to the right groin, when the left side was pressed to the left groin, and when the middle of the spine was touched, the pain was felt above the pubis, apparently in the uterus. In the other cases of hysteritis, this singular union was not looked for, but in the whole, there was a marked connexion between the spine, the uterus, and the groins. I found too that local means, especially blisters to the sacrum, afforded very marked benefit in abating the severity of the disease.

Some time ago, along with two medical friends, I visited a gentleman in whom there was pain around the anus, increased by going to stool, by motion, or by the slightest touch, so severe that he was fixed by it to one posture in bed. The pain could not be attributed to piles, or to any obvious cause.

It was much increased by purging. It yielded in part to the application of leeches around the anus, but it completely subsided, whenever a blister applied to the sacrum began to act. It seems probable that the nerves arising from the sacrum were irritated in consequence of enlargement of the blood-vessels of the part, and that this state was removed by the leeches and blister.

I have observed in a great proportion of the numerous cases of painful and diseased liver that I have met with, that there was a distinct painful tenderness of the spine, about the 9th or 10th dorsal vertebra. Pressure there immediately excites pain in the region of the liver. This pain is almost always on the right side of the spine. There are a few exceptions from this general rule, but where there is much pain in the liver, there is generally also pain of the spine. Pain in the right side from spinal irritation alone, is often a source of error in the treatment of diseases of the liver and of the stomach. It is often mistaken for disease in the liver, and where it has been originally connected with a fault in that viscus, it may continue from spinal irritation alone, after the diseased state of the liver has been removed.

I have also repeatedly observed this pain of the spinal nerves, in cases where the stomach was much disordered, especially where it was very acid. In such a case the pain shooting forward from the spine to the region of the liver, may give rise to the idea that the liver is diseased. We ought to recollect, however, that acidity in the stomach, or perhaps in the duodenum, is sufficient to occasion irritation of a spinal nerve, and that, as in other instances, the pain is felt at the extremity of this nerve, somewhere in the side, and often exactly in the right hypochondrium. The immediate cause of this pain is at once ascertained by the usual examination of the dorsal spine.

Reasoning on the various cases which we have detailed, in which distant pains and other morbid affections appeared to yield most readily to local means, applied to the spine, we should feel inclined to expect that in many complaints in the thorax and abdomen, where blisters and other local applications were indicated, we would produce a more powerful and direct influence, by applying these to the spine than to any other part. Blisters applied to the back are perhaps more inconvenient than to the breast or abdomen, but very probably they are more efficient.

The nerves which supply the viscera of the thorax, and of the abdomen, enter from behind, and a number of these proceed directly from the spine to the viscus to which they are

distributed. Of course in inflammatory and other affections of these organs, blisters and other applications to the back are perhaps more efficient than we are aware of. At any rate, if in these diseases we were to discover any degree of tenderness in the spine, extending to the affected viscus, we would expect considerable benefit from a blister on the spot. The old-fashioned plasters on the back, are perhaps more useful than modern practitioners suppose.

I have now given a general account of those complaints, in which for some time past I have observed that the nerves of the spine were irritable. In a great proportion of these, some distant pain was distinctly occasioned by this cause; and in many of them this immediately subsided, by directing the attention to the spine. In several of them, however, the spinal nerves instead of being primarily affected, appeared to sympathize with some other organ, but in the whole of them, I am confident that the state of the spine was entitled to great attention, and that we did more good by local applications to this nervous centre, than to the pained part at a distance from it.

Treatment.—In the *simple* form of this disease, where the irritation is limited to one nerve, the recumbent posture for a few days, is frequently sufficient to remove the pain. If the uneasy weakness continue in spite of this, we ought to apply leeches, and probably a blister to the affected part of the spine. There is no advantage in applying a large blister. If the disease has been long fixed to one spot, it is likely that the ligaments of the part have become thickened, and that even a caustic issue on the spot, kept open for some time, may be necessary.

For the removal of the more *formidable* disease, other measures are needed, and in fact we often find that a long time passes before there is much improvement.

If the disease be at all violent, the recumbent posture is absolutely necessary. It is quite obvious, indeed, that, without this, even the most active treatment will fail in producing any permanent effect, since it is only by removing pressure, and avoiding motion, that the nerves and muscles can be allowed to recover their powers. Besides, when the nerves are in an over-sensible state, which is a frequent occurrence in severe cases of this disease, motion of any kind, by irritating the nerves, is apt to occasion, or increase, partial spasm of the neighbouring muscles, and these spasmodic contractions, by forcibly drawing the vertebræ to one side, increase the pressure on the too sensible nerves, and in this way the pain may become agonizing. Total rest, therefore, in severe

cases, is absolutely necessary. Leeches should be freely applied, or blood taken by cupping the pained part of the spine.

After the pain has relaxed, I conceive that we ought to give a fair trial to long continued friction, having previously fomented the pained part. We may either rub the part with wheat flour, or starch powder, as is now so frequently practised in various local diseases; or we may employ the anodyne balsam, or some oily substance, combined with an aromatic, such as the oil of thyme. Perhaps there may be an indication to use a combination of the extract of belladonna with the oil or lard, for we know that this drug has a powerful effect in relaxing muscular fibres, and we have some reason to believe that partial spasm of the muscles arranged along the spine, has very material influence in occasioning pressure on the nerves as they issue from the spinal marrow.* We ought also to consider, that by long continued friction, we prevent the muscles of the back from becoming weak, from want of exertion. The attempts at motion and exertion, however, must be made with considerable caution. They must be proportioned to the feelings of the patient.

It is an object, also, gradually to increase the slope of the sofa, according to the feelings of the patient, for by doing so, we give the muscles of the spine more room for exertion.

If these measures are not sufficient to remove this tedious and troublesome complaint, we must have recourse to other means. Blisters are often of use. They need not be large. If they merely cover the pained part, the size is quite sufficient. A small blister behind the ear or to the temple, is often effectual in removing severe pain, shooting over the head. I have found the antimonial irritation to be well suited for the removal of these spinal diseases. In two instances we found that an obstinate disease subsided when-

* An itinerant practitioner, already referred to, much celebrated for the success of his practice in cases of this description, directs the back to be well rubbed where there is any pain, for 20 minutes; the patient sitting with his back opposite a fire. The friction is employed morning and evening, *across* the spine from behind forward, not up and down the spine, as is usually done. He confines the friction to 3 parts of the spine, *viz.* to the upper part of the neck, the middle of the back, and the middle of the lumbar spine. He employs a nostrum of his own, which seems to be merely some oily substance combined with oil of thyme. This is probably a good stimulant, and ought to be more employed by regular medical practitioners. This same practitioner recommends a nourishing diet, with attention to the bowels, but he prescribes no internal medicine of any description. He leaves this entirely to the regular medical attendant of the patient. He orders the patient to lie on a firm mattress, in the horizontal posture, and occasionally to employ as much exercise as she can without exciting pain.

ever erysipelas appeared on the affected part, and surely the antimonial eruption is much allied to this other inflammatory affection. We can apply an antimonial plaster to the pained part of the spine, or we may rub with the antimonial ointment morning and evening.

It is most likely, that the febrile excitement, which occasionally attends the eruption from antimony, may be of material service in removing the affection of the spine. In one well marked case in the Infirmary here (A. W.), who had been a patient for a long time, with irritation of different portions of the spine, this disease went off completely, on being seized with typhus fever. She is at present (February 1828) convalescent from fever, and quite free of spinal irritation. If we had any means of exciting fever, we should perhaps remove the affection of the spinal nerves.

If these different means were to fail, I would have no hesitation in applying a blister to the head, even although no partial palsy or affection of the sight were present. If, however, there had been weakness of any part, or want of power, or intolerance of light, or dimness of sight, although there had not been any pain of the head, I would apply a blister to the head more early in the disease. I conceive that on many occasions my attention ought to have been more decidedly directed to the state of the head than it was; since I am now persuaded that in these diseases the brain is more frequently in fault than we are aware of.

In the treatment of this disease, it is of infinite consequence that the general health of our patient should be thoroughly attended to. The bowels of course must be properly regulated; the appetite improved by tonics, especially by the preparations of iron. Perhaps emmenagogues, with the hip-bath, if the catamenia are faulty, may be useful.

Minute doses of the blue pill may do good, if the biliary secretions be in fault, or if the urine be deficient; and, especially when joined with other diuretics, mercury may relieve vascular fulness in the head, by producing a flow of urine.

I conceive that I have seen the Prussic acid or valerian of use, in correcting excessive irritability of constitution.

The shower bath, or spunging with cold water and vinegar, are also occasionally proper. The clothing should be comfortable, and the diet nourishing.

Postscript.—It being some time since I wrote this long essay on a subject which I conceive to be of some interest, and which certainly has proved to me extremely puzzling and complicated, it may be useful to mention briefly my present impressions regarding its nature.

These are—that the immediate cause of the pain of the back and breast is spasm of one or other of the muscles, arranged along the spine, altering the position of the vertebræ, or otherwise compressing the nerves as they issue from the spinal marrow.

That this spasm, in many instances, is strictly a *local* disease produced by fatigue, wrong posture, or other causes, and quite unconnected with the state of the brain, spinal marrow, or nervous system in general.

But that, in other formidable instances, this partial, spasmodic, or wrong action of these muscles, is owing to a faulty state, perhaps an enlargement of the vessels of the brain, or spinal marrow. This state of the brain, as in many other diseases, gives rise to spasm, or even to convulsion of certain muscles; which partial symptom from its severity attracts the chief attention. This local affection is confined to those portions of the spine where there is the greatest motion, and where of course the muscles having the greatest activity, are most liable to deranged action or spasm. I imagine that this view of the subject is illustrated, and perhaps confirmed by various symptoms, which were observed in the different cases, and which without it, were very incomprehensible. The partial palsy, the affection of the sight, the giddiness of the head (for I find that this was a prominent symptom in several cases, especially in that of A. S.), all give some confirmation to the notion that the brain is affected in these severe cases.

I have only to add farther, that if we pay attention to the number of the muscles, arranged along the spine, and to their functions, we shall see some reason for their being peculiarly liable to spasm. The variety of separate muscles in this situation is very great; and it ought to be kept in mind, that these are more constantly active than any other muscles, except the involuntary ones, since they are in a state of action in preserving the body in an erect state, as well as in every motion of the trunk.

This state of the muscles, as being the immediate cause of the pain, and of various uneasy feelings, is certainly entitled to marked attention, and we find it much moderated by posture, by local application, and especially by friction; but my conviction now is, that we ought to direct our attention at the same time to the state of the brain, as being the source on which severe cases of this description depend.

Glasgow, 13th February, 1828.

III. *Case of Laryngotomy, performed for the Extraction of a Plum-stone from the Windpipe.* By WILLIAM MACKAY, Surgeon, Glasgow.

As cases of laryngotomy do not occur every day, perhaps the following may not be altogether uninteresting. It illustrates both the little danger attending the operation, and the facility with which the foreign body is sometimes extracted.

Margaret Mitchell, æt. 6, on the 10th of September last, whilst amusing herself with a plum-stone in her mouth, allowed it to fall back into the throat, where it stuck so fast, that she could neither swallow it nor cough it up. Her mother ran with her immediately to a neighbouring surgeon, who first endeavoured to extract the stone with his fingers, but failing in his attempt, took a pair of quills, and thrust them down her throat. The stone disappeared, the girl felt easier, and was able to swallow liquids without any difficulty. Soon after, however, she felt something in her throat, which impeded her breathing, and produced a slight pain, and some degree of oppression, under the upper part of the sternum. The surgeon was again consulted; he assured them it was nothing but the effects of the previous irritation, and ordered some leeches to be applied to the throat. The leeches were not applied, and the girl continued for four days in nearly the same state, sometimes tolerably easy, at other times affected with extreme difficulty in respiration. On the fourth day, I was called to see her, which I did, in company with the surgeon who had previously been consulted. At this time, her breathing was laborious; pulse sharp and quick; countenance anxious, with a general appearance of oppression; and she complained of a pain under the upper part of the sternum, apparently proceeding from about the bifurcation of the windpipe. She had frequent paroxysms of dyspnœa, which at times were alarmingly severe. During the intervals, she took her food, and drank freely. From the history of the case, the appearance of the child, and other symptoms, I was clearly of opinion that the stone had found its way into the trachea, that very likely it had dropped into it, during the attempt to push it down the œsophagus, and that nothing short of an operation could save the child. The other surgeon was of a very different opinion, for he was certain he had pushed the stone down the œsophagus, and that the present symptoms were nothing but the effect of that operation. Under these circumstances, I declined giving the friends any positive opinion, but recom-

mended the leeches, which had been previously prescribed, and directed that the attending surgeon should be sent for when she took the next paroxysm, that he might have an opportunity of seeing her in that state. I promised to see her again with him afterwards, but from some cause or other he refused to call back as agreed upon. On the following day (14th September), the mother consulted a physician, who gave the following prescription:—℞ Tk. Opii. Ammon. ʒvi.—Æth. Sulph. ʒij. ℞ Pulv. Ipecac. gr. xvj.—On the 15th, she was much worse; the vomit had aggravated all the symptoms, and the other medicine was not administered. The mother got quite alarmed, and I was again requested to see her, which I did the next morning. The symptoms were now much more severe than they were on my former visit; every time the cough troubled her, which was very often, her face got quite livid; and the paroxysms of dyspnœa, which recurred at least every hour, were very severe, each seeming more likely than the preceding to put a period to her existence. After explaining to the friends the real nature of the case, and the necessity of an operation, I called in the afternoon with my friends, Mr. James Watson, and Mr. Mackenzie, both of whom agreed in the opinion I had formed of the probable success of an operation. After some unexpected delay on the part of the mother, till she consulted some friends in the country, her consent was obtained, and the operation was performed at ten o'clock that evening.

I made the external incision about an inch long, and entered the larynx immediately above the cricoid cartilage, which by a second incision was cut through. The air no sooner got vent by the incision, than a large quantity of mucus came rushing out; she at the same time experienced a severe paroxysm of dyspnœa, but after the opening was a little more enlarged, and the mucus wiped away, she began to breath with comparative ease. The edges of the wound were kept separate with two blunt hooks for about a minute, when the stone came rustling up to the wound, during an expiration. I laid hold of it with a pair of dressing forceps, and extracted it with ease. It is the size of an ordinary plum-stone. There was very little bleeding, and no vessel required to be tied.

After a few minutes, she was put to bed, and the wound left open, through which she breathed with ease. She also breathed through the natural passage. In less than an hour, she whispered so as to be understood, and drank some cold water freely. During the night, she slept four or five hours. Next day, she could articulate words, when she kept her hand on the wound. On the third day, the wound was dressed for

the first time; but the dressings had to be removed in the evening, in consequence of a pain in her side, and a general oppression over the chest, both of which disappeared by the next day. On the 5th, the wound began to close of its own accord, and slight dressings were applied. By the 7th, she breathed through it only when she coughed; and on the 12th or 13th day, it was dressed for the last time. The cough had disappeared, and the girl appeared as well and as stout as before the accident.

IV. *Malaria.*

ALTHOUGH we have as yet had but little experience in our vocation as critics, we are not altogether unacquainted with the tedium attendant on reading and reviewing books which are mere republications of what has been published and republished many times before; proportionate to that tedium is the pleasure we experience when we meet with new facts or new illustrations of acknowledged principles; but we cannot describe the feelings excited in us by a work like that of Dr. Macculloch on *Malaria*,* of which the very groundwork is original, and the whole superstructure raised in defiance of established opinions. We do not agree with Dr. M. in many, we should rather say in most of his reasonings, as will be seen hereafter; but in the meantime we will not withhold from him the praise, to which he is certainly entitled, and which we consider as of no mean kind, that of having stated his opinions fairly and fearlessly. The man who opposes universally received opinions on any subject of importance, requires certain moral qualifications to fit him for the task, without which he would shrink from it, even against his better judgment. Of such qualifications, it is impossible to read a single page of Dr. M.'s work without being convinced, that he has an abundant share. He seems never for a moment to have any misgivings as to the truth of his own doctrines. He states them, and repeats the statement in the strongest and most unqualified terms. He uses no conciliatory measures with the opponents whom he expects to rise up against him, but attacks on all occasions, with the most unsparing hostility, the prevalent delusions he has undertaken

* *MALARIA*; an Essay on the Production and Propagation of this Poison, and on the Nature and Localities of the places by which it is produced; with an Enumeration of the Diseases caused by it, and of the Means of preventing or diminishing them, both at home and in the Naval and Military service. By John Macculloch, M.D. F.R.S. London, 1827. 8vo, pp. 480.

to expose. Having taken his ground, he neither fears the shafts of ridicule, nor the more legitimate weapons of logic, "holding little," as he says himself, "of the civil courage of him who, with such an object in view as the benefit of mankind, is not ready to submit to that which has ever been the lot of those who undertake to do good to others, against their will, and in spite of their prejudices and ignorance."

We shall first present our readers with a general view of the doctrines advanced in the present volume, and then, proceeding to examine some of them more minutely, state our reasons for considering them untenable.

The pernicious effects upon the human body of marsh exhalations, or *Malaria*, as Dr. M. chooses to call them, have long been known to physicians. Of all causes of disease, indeed, marsh exhalations may be regarded as having been beyond comparison the most destructive of human life.—Epidemics arising from other causes, as the plague and small-pox, spread their ravages more widely while they continue to prevail, but, as if exhausting themselves by their own violence, their prevalence is only temporary. On the other hand, the diseases produced by marsh effluvia not only assume from time to time the form of epidemics, often of the most formidable character, but in the intervals exist in a sporadic form, as a never-ceasing scourge to the countries subjected to their influence.

The great variety of characters which marsh diseases assume, at first occasions in the mind some difficulty in referring them to one common cause. This difficulty, however, a little consideration enables us to get over. Overlooking the varieties of constitution, which render even the causes of disease the most simple in their nature productive of very different phenomena in different individuals, we have only in the present case to consider the varieties which must necessarily exist in the nature and intensity of the cause itself. These varieties are principally to be referred to the action of a greater or less degree of heat, upon a soil more or less impregnated with the solid and liquid material from which the noxious exhalations are generated. In this way are exhalations produced in different situations in greater or less abundance, in different degrees of condensation, and most probably varying also in more essential circumstances of chemical composition, which our present modes of analysis do not enable us to detect. We need scarcely wonder, therefore, that an exciting cause, so liable to vary, should produce diseases exhibiting a corresponding diversity of symptoms. Hence physicians have agreed to consider, as originating in a common source, diseases

apparently so dissimilar as the various shades and gradations which the marsh fever exhibits in different parts of the world—mild, intermittent, and protracted among the fens of our own country,—remittent, or continued in its course, and more violent in its symptoms among the marshes of Holland and Italy,—still more rapid and intractable along the shores of Africa, at Batavia, and the mouths of the Ganges,—and attaining its maximum of virulence and destructiveness, in the yellow fever of the West Indies and America.

We have judged it necessary to make these preliminary remarks, that we may not be thought to estimate too low, the noxious influence of marsh exhalations. Our opinions are, we believe, exactly those entertained by the great majority of physicians, both in this country and abroad. Dr. Macculloch, however, considers the prevalent opinions upon this subject as erroneous in two ways. In the first place, he regards many diseases generally referred to other causes, as the genuine offspring of marsh exhalations. In the second place, he regards as sources of poisonous exhalations, many localities, which in this country are considered innocuous, both by physicians and by the public at large.

Among the acute diseases proceeding from marsh exhalations, the first place must be given to the numerous tribe of fevers, already mentioned, varying in type from the mildest tertian ague to the most deadly form of the yellow fever. Dysentery and cholera, although certainly often produced by other causes, are regarded by some of our most recent writers, as in many instances the offspring of marsh exhalations. We have, besides, a variety of chronic ailments, springing directly or indirectly from the same source, as disorganizations of the liver and spleen, dropsies, and other cachetic affections. It is true that these affections are generally regarded as consequences of the marsh fever, and not of the direct action of the marsh effluvia. Nevertheless, from the history of the diseases prevalent in marshy countries, it would appear that the very same chronic affections are often observed, without the intervention of any acute febrile disease. It can scarcely therefore be disputed, that among the primary effects of marsh exhalations should be enumerated a general cachetic state of the constitution, betraying itself under various forms, as obstructions of the viscera, dropsies, scurvy, and incurable ulcers.

To the preceding list of diseases, already sufficiently formidable, Dr. Mucculloch proposes to make some important additions. He regards the common continued fever of this country, as in almost every case produced by marsh effluvia.

From a passage quoted below, it will be seen that Dr. M. supposes fever to arise almost exclusively from two causes, *malaria* and *human contagion*; and that the proportion of the former to the latter is as ten thousand to one. In another passage (p. 3.), he states his belief, that of the fatal fevers in this country, nine out of ten are marsh fevers. The surprise excited by these statements will not be diminished by finding the author refer to the same source, a great variety of chronic diseases, which he classes together under the common name of *neuralgia*; but of which we regret he has only thought fit to specify a very few cases in the present volume, viz. tic douloureux, headache, toothache, sciatica, apoplexy, and palsy. Of the extent, however, of this class of diseases, our readers will be able to form some idea, from the circumstance, that the author intends to devote a whole volume to the consideration of them. In fact, so far as we can judge, from the imperfect statements at present before us, the opinion of Dr. Macculloch seems to be, that if we except inflammations, eruptive fevers, and surgical affections, marsh exhalations produce almost every other disease in our nosologies, including nine-tenths of the fevers, and a very large proportion of the chronic diseases, prevalent in this country.

With respect to the *sources* of malaria, Dr. M.'s views are not less peculiar than with regard to its *effects*; and certainly, had he succeeded in establishing them, not less important. It will not, however, be supposed that Dr. M. means to say, that the fertile country of England is like that between Rome and Naples, a swamp from the one end to the other. That there are in it marshy soils of considerable extent cannot be denied, but into the distribution of these, the author does not minutely enter. His argument is of a much more general kind. He contends that it is a vulgar and most unphilosophical prejudice, to limit to *marshes*, the production of poisonous exhalations. It is to the presence of vegetable substances, in a state of decomposition, that marshes themselves owe the virulence of their exhalations, and wherever the same elements are to be met with, exhalations equally virulent must be produced. Now, it is not in marshes alone that vegetable substances are allowed to run into spontaneous decomposition. The same decomposition takes place in a variety of circumstances, and, what is of more importance to the present argument, under those circumstances marsh fevers are known to originate in more southern latitudes, just as readily as from the influence of marshes themselves. Such circumstances Dr. Macculloch recognizes in innumerable situations, not generally accounted in this country insalubrious,—in “minute marshy and swampy

spots, on commons and by roadsides ;” in woods, particularly coppice and brushwood ; in rushy pools, and swampy spots ; canals, ditches, drains, common sewers, moats around fortified places, still and stagnant waters of all descriptions, lakes, mill dams, fish-ponds, casual pools, old gravel pits, and even in common meadow land, not only in that consisting of low alluvial soil, but in upland meadows, and perpetual pastures on the sides of hills.

The two sets of opinions here advanced, have at least the merit of being consistent with each other ; and placed as they are in the relation of cause and effect, must stand or fall together. By what arguments then does Dr. Mucculloch endeavour to establish their relationship ? The argument on which he insists most is of the *a priori* kind, and is to be found stated at length at the beginning of Chap. IV. After showing that marsh exhalations are capable of producing disease at great distances from the place where they are generated, he goes on to say :—

“ The conclusion is obvious ; and there is nothing in it which seems to admit of dispute, since it is almost a question of arithmetic. If the produce of a hundred square feet, or acres, or of any scale and number of parts, can, under a dilution of one thousand or ten thousand times, excite disease, then must, in the inverse ratio, the produce of the one-thousandth or the ten-thousandth portion of that space be capable, before dilution, of producing the same effects ; or a single blade of grass acting on water (if this be the cause) may be as efficacious as an acre ; supposing, of course, that it is actually applied to that part of the body which can suffer from its action.”
P. 56.

It is needless to take up the time of our readers, by entering more minutely into an argument of this kind. It is clear that any argument from the cause to the effect, so long as the existence of the cause is in dispute, must be exceedingly unsatisfactory. The very opposite course of argument, from observed effects to their causes, is the only one by which the propositions of Dr. M. can ever be established. We regret, however, that this argument does not properly fall under the scope of the present volume, being reserved for more full discussion in two succeeding volumes, by which the work is to be completed.

In the absence of direct argument, in the pages of Dr. Macculloch, in support of his peculiar opinions, we are compelled to take them up on what we conceive to be their own grounds. With respect to the class of diseases which the author has denominated *neuralgia*, his opinions are so vaguely stated, that it is impossible to subject them to any critical

examination. We shall therefore confine our observations to the subject of fever; and that we may not be accused of misrepresentation, we shall allow Dr. M. to speak for himself.

“There remains yet the medical question. Were it not the ultimate and essential one, I would gladly have avoided it, because it is no longer a question of reasoning and facts, but of medical opinions and fashions. I must be brief in proportion; and shall be safe in saying, first, with physis, that fevers are proved to arise from two great causes at least; malaria and human contagion: the latter, whenever arising, enabling the sufferer to reproduce a substance productive of similar effects. And whatever other fevers there may be, from other causes, these two great classes, are, in numbers, as a hundred, or ten hundred thousand, to one, compared to the rest: while also the fevers from malaria exceed those from contagion ten thousand fold, or far more.” P. 478.

As the above proportion appears to be meant by the author to apply generally to fevers, in whatever country they occur, we must refer to a passage already alluded to, for the relative number of the two kinds of fever in our own country.

“If in our own more fortunate climate it [malaria] is less destructive, it is far more so than is commonly imagined; since, of those who die from fevers, it may safely be asserted, that more than nine in ten perish from the fevers of this class, too generally confounded with the contagious disorder of the same name, under the term typhus.” P. 3.

From the above quotations, and from many other passages that might be quoted, there can be no doubt that Dr. Macculloch wishes to inculcate the opinion, that the common continued fever of this country is most frequently produced by marsh effluvia or malaria. Now of this opinion it appears to us, that he has himself furnished us with a refutation. Little as Dr. Macculloch may be thought disposed to favour the Scotch in any thing, yet he has bestowed upon their climate an eulogium of the very highest kind, in declaring it exempt from malaria, the cause of nine-tenths of the fevers and most of the chronic diseases of the sister kingdom. Even in this, however, he shows his old antipathy to be yet unabated, the language employed being less that of commendation than reproach. “The climate of the great peat bogs of the north of our island is one that has not energy enough to produce malaria.” (P. 66.) Without stopping to inquire whether this want of energy in our climate be a matter of regret or congratulation, we shall merely remark that the fact is so notorious, that it cannot be disputed. The intermittents that once prevailed on the eastern coast of Scotland have been long banished by the progress of agriculture; and over the rest of

the kingdom, so little is malaria to be dreaded, that our peasantry pitch their dwellings in the middle or by the side of a marsh, with as complete immunity from disease as though they occupied the summit of the highest hill in the neighbourhood. The same observation is applicable to all the localities which a few degrees farther to the south are productive of poisonous exhalations. We have our canals, ditches, drains, and common-sewers, our "rushy pools and petty swamps," our fish-ponds, mill-dams, and meadows, yet what physician ever pretended to discover any endemic disease originating from such sources? The inundations, which under the influence of a warmer sun, leave the air loaded with exhalations that engender the most formidable epidemics, are frequent all over Scotland, and yet, if we except an increase of *coughs and colds*, leave no bad effects behind them. The southern parts of our own city are often laid under water by the overflowings of the Clyde, and yet no epidemic fever follows that event, nor are the inundated districts subject to any disease, not also prevalent in the other parts of the city. We are, therefore, as Dr. Macculloch has himself admitted, exempt from malaria. How, then, is the Doctor to explain the fact, that fevers, with the exception of those of the intermittent kind, are as common among us as among our southern neighbours? The continued fever of Great Britain, too, is the same disease, according to the description of our best writers, in whatever part of the island it occur; the same in London as observed by Bateman and Armstrong, and in Glasgow, as observed by Millar and Graham. Now, it would be absurd to suppose, that malaria produces on the south side of the Tweed, the very same effects that causes of a different kind produce on the north; diseases so completely identical must acknowledge a common cause, and that cause, according to Dr. Macculloch's own admission, cannot be malaria.

We shall conclude with a few extracts as specimens of the manner of the author, and affording some farther illustration of his peculiar opinions. The following passage shows the importance he attaches to the *less suspected sources* of malaria:

"But time effects what man cannot; and hereafter, perhaps, an English gentleman will be as much surprised that his neighbour should dig a sleeping canal before his door, as that his feudal ancestor should have built his castle in a marsh, and enclosed it within a putrid moat.

"To suggest that he who does this is sowing the seeds of disease, that he may reap the fruit of fevers and apothecaries' bills, is to excite the smile of superciliousness or contempt; as he must long yet submit to be the object of both, who would try to convince man-

kind that the pond which has been constructed for a few gold fishes, or the river which meanders through the woody valley, is a death-spring of diseases, or that the fevers and the toothaches which are the torments of his family, the ailing wife who is his own torment, and the sciatica which is the torment of his poorer neighbours, are the produce of a few bunches of rushes, or of a splendid display of waterlilies. Yet the time is not very long past, it is not everywhere past yet, when the intermittent itself was supposed to be salutary, when a 'spring ague' was esteemed such a blessing as persons of similar powers of reasoning even now esteem the gout; and the time will also arrive when he who has smiled at this philosophy, will, in his turn, be the object of a smile to the heir who shall expend in laying dry as much as his predecessor wasted in inundating." P. 30.

Of physicians and their art, Dr. Macculloch entertains the most sovereign contempt. For proofs of the ignorance of physicians, of their mistaking the diseases of their patients, and killing them, we need not quote particular passages. See *the work passim*. Of what we dignify by the name of Medical Science, the author expresses himself thus, at p. 476:—

"It is quite time that physic should cease to assert, and commence to prove; that it should re-examine what it has hitherto believed, together with its grounds of belief, and not be content, in these days of a better philosophy, with its ancient dogmas; with that which it believes and acts on from habit, not from conviction, and with the phraseology which it too often mistakes for reasoning."

Again, at p. 474, after gravely, and at considerable length endeavouring to demonstrate what we humbly conceive, from the excessive vagueness of the language of the author, to be neither more nor less than an identical proposition, viz. that *marsh* fevers always proceed from the influence of *marshes*, he triumphantly concludes,—

"Had I been discussing a question in any other branch of philosophy than physic, I should have proved my case to the satisfaction of every reasoning mind; proved that not one of these causes was the real cause, or the 'exciting cause' of this fever, whatever share they may take in operating on the body so as to render it capable of being influenced by the real cause. But I know physic too well to expect that I shall produce such conviction; since against what is neither logic nor philosophy, philosophy and logic are opposed in vain."

At the end of the chapter on the propagation of malaria, our readers will find an opinion stated, which we were at first disposed to consider as the most extravagant of all the extravagancies of Dr. Macculloch, viz. that the agues of the Low Countries are brought over to us in the spring by the east wind. The arguments are however exceedingly plausible and

ingenious, and it must be left to the physicians on the east coast to determine their validity.

Upon the whole, we recommend Dr. Macculloch's work to the perusal of our readers. They will most probably derive some instruction from the learning and ingenuity of the author, and certainly much amusement from his arrogance and dogmatism. If he has failed in the great objects he had in view to establish, it must be recollected that only one third, and that the least important of the evidence he has to adduce, is yet before the public. We cannot, however, but think that his three volumes might have been advantageously compressed into one. The great fault of the work is being everywhere too vague and diffuse. The style is florid and declamatory; we must add, in many passages forcible and eloquent. This is, however, poor praise for the author of a philosophical work, from whom we wish and look for nothing more than a plain and perspicuous statement of his premises, and a logical deduction of his conclusions.

A. B.

6, South Hanover Street.

V. *Cases in Midwifery*. By B. W. KING, M.D.

IN a long continued, and somewhat extensive practice in midwifery, it is to be expected that many cases will be met with, out of the usual order, the reports of which may be useful to the younger members of the profession.

I. One of the most alarming accidents that can occur during labour, is *inversion of the uterus*. This may sometimes arise from incautiously pulling the cord to bring away the placenta, and then is attributable to rashness or ignorance; but I am certain that it occasionally happens from circumstances over which the practitioner has no control, and this I think will be evident from the following case:—

On the 28th of December, 1819, I was called at six in the morning to a lady, whose labour had commenced four hours before, by the rupture of the membranes. The presentation was natural, and the labour was finished at half-past twelve. During the progress of it, the pains had been regular, but towards the end more than usually severe. The umbilical cord was coiled several times round the neck, and twisted over one arm, and of course there was but a very small portion disengaged between the last turn and the placenta. No pulsation could be felt in the cord, and several minutes elapsed before the child showed any signs of life. After the usual

means had succeeded in restoring animation, my attention was directed to the mother. A sudden gush of blood led me to examine, and I found the centre of the placenta, from which the cord proceeded, presenting in the vagina as if another pain would soon deliver the secundines, and finish the business. I waited some time, however, in vain. No progress was made; and I introduced my hand to bring away the placenta, before the contraction of the external parts, already very narrow, should render it difficult to do so. I was immediately convinced of the mistake I was under, in supposing that the placenta had separated, and was lying loose in the vagina ready to be brought away. It adhered firmly by its whole circumference, and was only slightly detached in the centre; and in its descent had dragged with it the fundus uteri, which I felt inverted, forming a globular body as large as a child's head, and still covered by the placenta. This process must have taken place in the last moments of labour, from the shortness of the cord, and the violence of the last sudden and convulsive throe, by which the child had been expelled. Be that as it may, the mischief was done, and it was my duty to remedy it; the case admitted of no delay. The uterus must either be replaced, or the patient left to drag on a miserable existence, without the hope of another day of perfect health. My first care was to detach the placenta, and to bring it away. Again I introduced my hand, closed it, and applied it in a rounded form to the fundus uteri, and by a steady and long continued pressure in the proper direction upwards, I succeeded in returning it into its place; but not without great difficulty, for the inversion was so far incomplete, that the os uteri grasped with great firmness a portion of the inverted neck, requiring considerable strength to push the fundus through this stricture, even after I had got it turned upwards thus far. The womb very slowly recovered its usual shape; and it was not till after I had kept my hand an hour and a quarter in its cavity, that I ventured to withdraw it, as there existed much strong spasmodic and irregular action during the whole of this time. No flooding, however, took place; the recovery was perfectly good, and I have delivered the lady three times since of large healthy children. My anxiety during the progress of this labour was intense; and much increased by the recollection of the case of a lady who had a short time before died under my care, after ten years' attendance, which was only half of the time she had suffered from inversion of the womb. During the whole of this long period, she had been harassed by pain, and exhausted by floodings so frequent, that she was scarcely ever dry. Her delivery had been conducted solely by a mid-

wife, who had allowed the accident to pass *sub silentio*, perhaps regardless of the future sufferings of the patient, so that her own *trade* did not fall off; and much time elapsed before the true nature of her complaint was ascertained, though the impression of the lady herself had all along been, that an accident had happened during her labour, as the midwife, not quite sober, had forcibly drawn away the placenta. By examining with the finger, a firm substance, giving the idea of the round end of a pear, could be felt protruding into the vulva; the finger, carried an inch and a half farther up, discovered the neck surrounded by a ring which felt like cartilage. It was now evident that nothing could be done beyond palliating symptoms as they might arise; and her situation in life affording every comfort, she was less miserable than a less affluent patient must have been. I shall pass over the treatment, and only mention, that an opportunity having been given of inspecting the body, we found immediately under the bladder, and over the rectum, a blind pouch where the fundus uteri should have been, into which the finger entered easily, and another finger pushed into the vagina, was readily felt through the intervening coats of the womb. The ovaria were less than usual; and the Fallopian tubes appeared shortened, from being drawn down with the inverted fundus. The os tinæ formed the ring resembling cartilage, which had been felt round the neck during life.

I have reason to believe that inversion of the uterus is by no means an unfrequent occurrence, as in talking on the subject with Mr. Mackenzie, he stated that he had found two or three instances of it in subjects brought accidentally to the dissecting room, when he taught anatomy, and the preparations of which are now in his possession. These unfortunate women had, in all probability, been the victims of ignorant female practitioners, as they belonged to that rank of life which is seldom attended by any other. Such instances, to which others might easily be added, of women rendered miserable for life by the rashness of uneducated midwives, without *science* to obviate danger, or *nerve* to meet it when it is unavoidable, ought to silence the babbling of those who would revive the prejudice, now almost laid at rest, against male practitioners; and the subject might well be left to the good sense and experience of the public, had it not been lately treated of, and with no very gentle hand, by a person said to be a surgeon, whose own feelings, if that be true, should have placed him above entertaining suspicions derogatory to the honour and fair fame of his neighbours—fellow-labourers with himself in the same vineyard; and although in a branch of our pro-

fession which "delighteth him not," yet every way his equals. He has sent forth a warning voice to his fair countrywomen against the danger they incur in trusting themselves to an accoucheur—not danger of their lives or health—no such thing—far worse—danger to their morals, to the best principles of their existence. Good easy man! grant that every accoucheur is the gay deceiver he would make him, does he not know the virtue of our women to be of sterner stuff? It is, however, fair to give the author credit for the best intentions; and it is possible that some solitary instance of profligacy on the one side, and of folly on the other, may have roused his virtuous indignation, but it is far more probable that his fears have no foundation at all, but in the prurient imagination of some less-gifted individual, who has hoaxed our knight-errant into the perpetration of his letter. But calumny of this kind can only be answered in one way. We must "live it down," and the morality of the profession must be read in the private history of its members. Society is not hoodwinked. If Tartuffe appear, he will sooner or later be detected, and his consequent disgrace and ruin will be so complete, that he must be a reckless rogue and a bold one, that would run every risk against such fearful odds. "Le jeu ne vaut pas la chandelle."

But the good intentions of our author do not end with this prohibitory caution. Having told the ladies of all the bad consequences to be dreaded from any intercourse with men midwives, and yet being more than half convinced that children must be assisted into the world somehow or other, he proposes to remove all danger to their morals by educating a generation of young women, in whose hands their characters at least shall be perfectly safe. But there should be consistency in every thing. Does he not shudder at the risk to which he will expose his future midwives? Poor innocent women! little can they know, till too late, the misery for which he destines them; for before they can practise, it is plain that they must be educated, and to acquire the necessary knowledge—under whose care does he intend to place them? Why, under the care of the very libertines, whose touch, according to his own showing, is contamination. Unhappy creatures! long before they are fit to serve the public, they must practise on one another, or take refuge in the Magdalene. Reformers have abounded in every age and country; and Horace probably alluded to some of the fraternity, when he said—

" Si quis nunc quærat : Quo res hæc pertinet ? illuc :
Dum vitant stulti vitia, in contraria currunt."

But to return from this digression.

II. Other cases occur, which, although neither so alarming nor so dangerous as the preceding, give some trouble to the accoucheur; and as an instance, take the following:—On the 23d of June, 1821, I was called by two medical friends to assist in a first labour. The pains had commenced twenty-four hours before. The child lay with the breech presenting, and the belly to the pubes, a position which never fails to render the labour difficult, unless we can, after delivering the legs and body, turn the face into the hollow of the sacrum. Strong pains had accompanied the whole labour; and the breech was well advanced, but the delivery was completely impeded by a firm broad *ligamentous band* stretched across from one side of the os uteri to the other, leaving just space enough, at both the posterior and anterior edges, for the introduction of the finger, by which, hooked over its middle, it could be drawn down to the os externum. No force could break it, and it was evident that while it existed, the child could not be born, and the womb was in constant danger of being ruptured. I therefore cut it; and as the pains had now suddenly ceased, and there was every chance of protracted labour, with the certain death of the child, if left in its present position, till labour should be effected by nature, I proceeded, after consulting with the other gentlemen, to deliver. At first I thought I should be able to manage it by hooking the fingers of my left hand over the right groin, for the parts were too narrow, and the child too firmly jammed, to admit of even one finger of each hand; but no effort I could use had the slightest effect. I then carried a piece of tape between two fingers of my left hand, about half way round the groins, and withdrawing these fingers, left the tape to be seized with two fingers from the opposite side; and after some difficulty, I brought it through. To the end of this I tied a soft handkerchief, which, by being drawn along the cleft formed by the folding of the thighs upon the belly, gave me power enough. It required much strength to accomplish the delivery of the breech; but that once brought down, the feet were easily extricated, and the child turned with its face to the hollow of the sacrum. Having proceeded that length, I introduced a finger into the mouth, and guiding the head so as to give it the proper turn under the arch of the pubes, the delivery was happily completed in a few minutes; and the child, though it remained apparently lifeless for sometime, was soon restored much to our satisfaction as well as astonishment; for we had all supposed that the length of time it had been locked in the birth would have compressed the cord so firmly, as to have extinguished all hope of renewed circulation. We endeavoured, by ques-

tioning the patient on the previous state of her health, to discover some assignable cause for the formation of this band, but she had never had pain in the region of the uterus, nor any derangement of the system, such as takes place in consequence of inflammatory action, even slight in degree; though it is possible that these symptoms may have been present in very early life, and accounted for in some other way. I believe, however, it is in general better, in cases of this sort, to state facts than to solve problems.

III. It sometimes happens in natural labour, that the *speedy delivery* of the child, followed very soon by the placenta, gives us promise of an early release; but here, we often "reckon without our host," as I have proved at the expense of many a sleepless night. On the 18th of August, 1819, I was sent for, in great haste, to a lady in my immediate neighbourhood. I was at the bedside in a minute or two, but the child had been born already without assistance, and apparently by a single pain; the placenta followed almost immediately, and I was busy giving directions to the nurse, when the lady feebly expressed her fear that she was fainting. Her pulse was scarcely to be felt; her face covered with large drops of sweat, and syncope nearly complete. On examining, no blood was seen to issue from the parts; I ordered wine to be poured down her throat, and suspecting hæmorrhage within the uterus, I introduced my hand, and found the cavity filled with blood. I repeated the wine to the extent of several glasses, till the pulse was restored to the wrist. I cleared out the blood, and kept my hand in the womb till contraction took place, and which, from the irritation produced by the constant motion of the fingers, was sufficiently firm in fifteen minutes to allow me to withdraw my hand without any farther fear of flooding. I suspect that this case would have been fatal, had the lady been out of the reach of very prompt assistance; and I have no doubt that many lives are lost from internal hæmorrhage, of which no suspicion exists, because no marks appear externally; for it is only when syncope takes place that the attendants become alarmed, and unless the stimuli I have mentioned, both diffusible and mechanical, are instantly had recourse to, recovery becomes hopeless.

Every experienced practitioner is, I suppose, now agreed on the propriety of giving wine, or some other equivalent stimulus, in cases such as I have related above; and on this subject I can speak with the most perfect confidence, as I have used one or other of them, but principally wine, in every case of the kind which I have met with for many years, and with the

most excellent results; nor am I guided in any other way in prescribing it than by its effects in restoring the strength, thereby producing the necessary contraction of the womb, and putting a stop to any farther loss of blood. I can safely aver also, that I have in no instance seen any disagreeable symptoms arise from the use even of a large quantity. In some cases, when the danger was over, and the system restored nearly to its usual state, the stomach has felt loaded, and the wine has been thrown up; but by that time it had done its duty, and was no longer necessary. In a case which I attended on the 5th of May 1821, I find it noted as follows:—The presentation was natural, the birth easy, the placenta soon expelled, and things went on well for half an hour, after which the lady became faint. I introduced my hand, and discovered much internal hæmorrhage, and the uterus remaining uncontracted and flaccid. Here it required four or five glasses of wine, a full glass of brandy, and several doses of ammonia, before any action could be induced in the uterus; and it was upwards of an hour before it was sufficiently contracted to allow of my withdrawing my hand. The recovery was complete, and nothing unpleasant occurred in the course of it. The introduction of the hand may by some be considered a harsh remedy, but added to the stimuli I have mentioned, it supersedes all other modes of arresting flooding after labour, is perfectly safe, and in many cases quite indispensable, as is familiar to every practitioner, in retention of the placenta from what is called the sand-glass contraction, of which I could give many instances.

Gordon-street, Feb. 9th, 1828.

VI. *Observations on the Use of the Lobelia Inflata, in Asthma and other Spasmodic Diseases.* By JOHN ANDREW, M.D.

THE way in which I became acquainted with this remedy in asthma, was the following:—In the autumn of the year 1818, returning from Campbelltown, Argyleshire, I found we had on board the steam-boat a man who was asthmatic, and who had been seized with a paroxysm just before the vessel sailed, at five o'clock in the morning. He was with some difficulty brought on board, and laid in the steerage. I was requested to visit him. The paroxysm was very severe. As there was no medicine on board, at least that I knew of, and we had left the harbour, and were proceeding on our way, I ordered a

little gin toddy, which the patient said had sometimes given him relief. The relief afforded was only momentary; for his sufferings soon returned, and he struggled hard for breath. A gentleman on board learning the circumstance, politely offered me some medicine, which he said had been of singular benefit to himself, and to others afflicted with asthma. I wished to know what it was, but he requested me to give it first, and he would tell me afterwards, when I had seen what it could do for the poor man. I gave it as he directed, and in less than forty minutes, the poor fellow was completely relieved from the distressing paroxysm. The gentleman then told me that it was an herb which grew plentifully in the place where he came from, and which, made into a tincture with brandy, and administered in doses of a teaspoonful every twenty minutes, gave almost immediate relief. He pulled out his pocket-book, and showed me the receipt, which he had got from an American practitioner, and kindly offered me a copy of it, and a quantity of the tincture; and said, that as he was going to sail in a few days for America, and had a quantity of the plant on board the ship he was to sail in, he would give me what remained of it, so that I might prepare the tincture for myself.

I made it as follows:—R. Foliorum *Lobeliæ Inflatæ*, ʒijss. Alcoholi Diluti, ℥bj. Digere per dies decem vel quatuor decem, et cola.—This tincture should be made with spirit, bead 25, instead of brandy; for if strong spirit is not used, a deposition takes place in a short time. In consequence of the kind present of my fellow-passenger, I was enabled to give this medicine a fair trial.

I became convinced that it was of great use in *asthma*; so much so, that after I had used all that I had received from my American friend, I tried often to procure it from Baltimore, where he said he had found it. It was not, however, till about eighteen months ago, that I was so fortunate as to obtain a fresh supply. An intimate friend, who was going out to New York, when I mentioned the plant to him, promised to bring some of it with him on his return, which he did.

I have used the *lobelia inflata* in the worst forms of *pertussis*, with decided advantage to the little sufferers, in all relieving, and with the exception of one, curing the disease. There is no medicine with which I am acquainted, that so effectually relieves the bronchial vessels of their viscid mucus as the *lobelia*. It is emetic and antispasmodic.

In an obstinate case of *chorea*, where purgatives, antispasmodics, and tonics, had been used without benefit, I ordered thirty minims of the tincture to be taken three times a day,

which in four days completely carried off the convulsive motion of the limbs. The patient, a girl of 14 years, soon got well.

In *phthisis*, it is useful in relieving the cough and difficulty of breathing.

In a recent instance of *delirium tremens*, where the patient was for hours convulsed, where opium in large doses failed to relieve, and where the patient was considered hopeless, the second teaspoonful of the tinctura lobeliæ inflatæ removed the convulsions.

The tincture, made according to the formula given above, is much stronger than that made according to the one shown me, and therefore it must be given in smaller doses. Thirty or forty minims, every twenty minutes, are the doses I have generally given. In the case of *delirium tremens*, I gave a teaspoonful every half hour. I have given some of the plant to Mr. Macleod, Argyle-street, from whom medical gentlemen who wish to use it may procure the tincture.*

VII.—On Defective Hearing dependant on Deficient Secretion of Wax.

IN proportion to the other complaints of the ear, the great number of cases of defective hearing, attended by imperfect secretion of wax, and consequent dryness in the meatus, must have attracted the attention of every practitioner. Mr. Buchanan of Hull, has lately investigated this subject with his usual labour, and has communicated the results in a volume,† of the practical parts of which we shall endeavour to give our readers a summary account.

* The American practitioners are of opinion that the United States do not yield a plant of more powerful and unequivocal operation on the human system, than the one here recommended by Dr. Andrew. It possesses emetic, sudorific, and powerful expectorant effect. Dr. Barton, in his "Vegetable Materia Medica of the United States," tells us, that it is chiefly remarkable for the first of these operations, emptying the stomach vehemently and speedily; producing, however, great relaxation, debility, and perspiration. Spasmodic asthma, whooping-cough, and spasmodic croup, are the diseases in which the American practitioners have found it most useful. They have tried it also, and it is said with some success, in hydrophobia. Administered in the form of clyster, it produces the nausea so frequently sought for in cases of strangulated hernia, from the same mode of using tobacco.

The lobelia inflata is common everywhere in the United States, and is easily recognised. From its activity as a medicine, or, in other words, its powerful poisonous qualities, it should be given in such cautious doses only as are recommended above. Dr. Barton relates an interesting trial of a quack, who employed the lobelia so liberally, as, not in one instance only, but in several instances, to have put a speedy end by its means to the sufferings and to the lives of his patients.—W. M.

† Physiological Illustrations of the Organ of Hearing, more particularly

The ducts by which the ceruminous glands of the auditory canal discharge their secretion, are extremely numerous. "I have counted," says Mr. B. "by means of the microscope, from 20 to 30 ducts in the square line, or from one to two thousand in the meatus." The secretion from these glands, Mr. B. describes as forming a ceruminous tube, to which he ascribes far higher functions than the mere guarding of the ear from the intrusion of insects. He states that, without the wax of the ear, the sonorous undulations strike the membrana tympani irregularly, and produce a confused sensation, rendering the individual almost totally unable to partake of the pleasure of conversation. He is of opinion that the halitus of volatilized wax preserves the membrana tympani from the ill effects which might otherwise arise from too much or too little moisture of the atmosphere; and that deficient secretion of wax of itself brings on a diseased state of the membrana tympani, inconsistent with that degree of elasticity necessary to enable it to transmit the delicate vibrations on which hearing depends. Mr. B. farther considers the wax as useful in absorbing the pulsations of sound, reflected from the membrana tympani; and states that the reflection of the undulations from that membrane to the dry sides of the meatus, and hence again to the membrane, in cases of deficient wax, is the cause of many symptoms, so distressing to patients, as to render their existence almost miserable, and which are commonly attributed to nervous deafness.

Mr. B. regards deficient secretion of wax as depending on debility in the action of some of the branches of the portio dura. Nervous deafness depends on disease of the portio mollis. The former complaint may exist without any affection of the portio mollis; and, on the other hand, the sentient power of the auditory nerve may be impaired, and yet wax be present in tolerable quantity, although frequently of bad quality. If debility of the portio mollis be not removed, it is generally communicated in a greater or less degree to the portio dura. Indeed, the state of the ceruminous circle affords a valuable criterion of the general condition of the organ of hearing; for if the meatus, tympanum, or labyrinth be materially diseased, no healthy secretion of wax takes place. Mr. B. however, has propounded the following diagnosis, between deficient hearing arising from mere defective secretion of wax, and what may be styled labyrinthic dulness. Both diseases are attended by false perceptions. When these

of the Secretion of Cerumen, and its effects in rendering Auditory Perception accurate and acute. By Thomas Buchanan. London, 1828. Royal 8vo. pp. 160. 10 plates.

owe their origin to deficient wax, they consist in what Mr. B. terms *resilience*, or a kind of double auditory sensation, so that when one person speaks, the patient hears as if two persons spoke nearly at the same time. But when the disease is nervous, a general confusion of sounds is produced, somewhat similar to that which is experienced when the meatus is closed by the finger—a sensation of noise is created, instead of accurate and distinct sounds, but unattended by the secondary vibratory sound, characteristic (as Mr. B. thinks) of deficient cerumen.

Cold is the only direct cause which Mr. B. has particularized, as giving rise to deficient secretion of wax. Various indirect causes of course exist, such as purulent discharge from the meatus.

With respect to the cure, Mr. B. has recourse to both local and general means.

One of the local means is the application of what may be called artificial cerumen. This is a compound of quassia, nitre, aloes, Venice turpentine, iodine, and lard, to be prepared just before being used, and to be applied with a camel-hair pencil in such a way, as to form an artificial ceruminous ring within the meatus. Mr. B. gives several instances of the remarkable effect of this ingenious contrivance, in restoring hearing for a time.

A second means employed by Mr. B. is a pyroligneous acid injection. This is to be employed slightly warmed. Stimulating the parts to healthy action, it promotes the secretion of cerumen; and if it should happen that purulent discharge exists in the meatus, this will be corrected at the same time.

Warmth and stimulating frictions may also be set down among the local means of cure.

Among general remedies, alteratives and diaphoretics appear to be those in which Mr. B. places most confidence.

On the whole, Mr. B.'s work displays ample proofs of the extreme care with which he has investigated the structure and diseases of the ear. The mere mention of a table, in which he has given us the size and angle of attachment of the auricle, the longitudinal and horizontal diameters of the concha, and those of the meatus, in a hundred living individuals, with remarks on their various states of hearing, is a sufficient illustration of the perseverance and minuteness displayed by Mr. B. in the pursuit of his favourite study.

W. M.

VIII.—*On the propriety of introducing a Simplified Anatomical Nomenclature.* BY ROBERT HUNTER, Member of the Faculty of Physicians and Surgeons, and Lecturer on Anatomy, Glasgow.

It is much to be regretted, that a science so interesting and useful as anatomy, should be overloaded with cumbersome and unphilosophical technicalities. Technicalities are generally supposed to be indispensable in every department of science; but an immoderate use of them is surely a great evil; and in anatomy, I conceive, the evil calls aloud for reformation. Technical terms should be used only when common language is inadequate to the purpose; and when such a term must be resorted to, it should be applicable to one thing only, and susceptible of no other meaning than the one that has been applied to it. How few, however, of our technicalities are in these respects unobjectionable! Many of them can be as easily expressed in English as in Latin or Greek; but the more lofty sounding Greek or Latin appellation has been used, whilst the more simple and intelligible English term has been uniformly rejected. In the formation of these technicalities, science and principle of every kind appear to have been overlooked, and we can discover nothing that has given rise to them but the most puerile conceits, and the crudest and most absurd notions of the *things* intended by such terms to be notified or illustrated. Many of our technical terms were introduced in the infancy of the science; and although since that period, discovery has pressed hard upon discovery, and improvement upon improvement—although the theories which gave rise to many of the terms in question have been proved to be ill-founded—still these terms are as pertinaciously adhered to as if they had been formed on principles the most just and incontrovertible.

There is something exceedingly repulsive in the nomenclature of anatomy. It is not only harsh and disagreeable, but what is worse, is oftener calculated to mislead, than to impart vivid and correct ideas of the parts. Many intelligent students have lamented their incapability of remembering such terms, who had no difficulty in understanding and remembering the things themselves; and as the terms are at present an indispensable part of knowledge, time is occupied in overcoming artificial difficulties, which, even when surmounted, are of no practical advantage: the mind of the student is thus carried away from the legitimate object of inquiry, and directed to

others, which at best are but of minor or trivial importance. If a knowledge of anatomy could not be attained without such technicalities, there would be an overwhelming argument in favour of their continuance. But the idea is preposterous. Common language is sufficient for every purpose, either in science or art. In transacting the ordinary affairs of life, mankind never use a technical expression; yet the diversified incidents of human life are explained with a clearness, a spirit, and an accuracy which technical terms alone cannot impart, and which, indeed, are incompatible with the use of technical phraseology. If a science, then, can be taught as easily and perfectly without the use of technicalities, why press them into the service? Why choke up the avenues to the temple of science with so much rubbish?

In all descriptive sciences, as well as anatomy, terms of some kind, however, must be used, because the objects of the science must be notified and distinguished; and it would be highly advantageous to the interests of science, if terms could be invented, which would describe, in one word, the most important particulars of the things intended to be named. But from the complex nature of the objects which anatomical science embraces, this I conceive is impracticable. No attempt of this kind, so far as I know, has ever been attended with general success. That by Dr. Barclay, not only left the general technicalities of the science untouched, but added to the evil by the introduction of new ones, which referred principally to the aspect and position of parts. Dumas indeed followed out this principle in his nomenclature of the muscles, and so far as the muscles only were concerned, he was somewhat successful. He contrived to give them names indicative of their points of attachment; but from the multiplicity of their attachments, the names often became quite unwieldy and unmanageable, and were with difficulty either pronounced or remembered. His nomenclature, therefore, never became popular, and is now, I believe, almost neglected.

No terms appear to me of such universal applicability in anatomy as *numerical* ones. To their meaning no possible ambiguity can be attached. They are so simple, that even a child can comprehend them, and are as capable of distinguishing objects to which they may be applied, as more learned-like, or more sonorous appellations. They have hitherto, indeed, been very sparingly introduced, but sufficiently so to show their paramount superiority. How finely we name and clearly distinguish the ribs, and bones of the spine, in this way! Would our ideas of them be equally clear were twelve high-sounding technicalities attached to the one, and

twenty-four to the other? Would not confusion then reign, instead of, as at present, simplicity and order? How elegantly and expressively can the eight bones of the carpus be named according to this plan—by their numbers alone! We find that nature has arranged them in two rows, four bones in each row. With what precision, then, can we refer to the 1st, 2d, 3d, or 4th bone in either row! We have here no terms which, from uncouthness or complexity, can act as stumbling-blocks to the memory, or decoys to the judgment; all is simplicity itself.

The nerves that arise from the brain were first arranged by Willis into nine pairs, and distinguished by numbers; and the simplicity of this nomenclature has secured its continuance till the present day; but the majority of anatomists are still affected with the mania for *verbiage*; and instead of confining themselves to the simple nomenclature of Willis, which is adequate to every purpose for which it was introduced, to each nerve they have likewise given an arbitrary name, which has nothing to recommend it but its scholastic-like appearance. Many of these nerves have indeed two or three scholastic names, as if words and science were synonymous terms, or as if the great object of anatomy was to lead men into a knowledge of words, and not into a knowledge of the things of which the words are merely representatives. In the instances to which I have just now referred, numerical terms have been used with decided advantage. The question then arises, might not the same terms be more generally applied; or might they not, with the assistance of common and popular terms, supersede the use of every other?

Every *organ* in the body has a common or popular term, which I conceive is just as expressive as the most elaborate technicality. *Heart, stomach, liver, brain*, and other terms of similar character, are just as useful for every scientific purpose as more far-fetched or high-sounding epithets. Such terms, then, might be invariably used, to the exclusion of the technical; and when we wished to notify the processes or subdivisions of any organ, how effectually could this be accomplished by the use of numbers! Did I wish, for example, to distinguish the lobes of the liver, could I not attain my object by the use of the terms, 1st, 2d, 3d, 4th? Nay, is not this a much more natural way of distinguishing them, than by the terms at present in use; by such terms as *lobulus dexter, lobulus sinister, lobulus Spigelii, lobulus anonymus*? Will any one venture to assert that *lobulus Spigelii* is as expressive as the 3d lobe of the liver; or that, as a name, the 4th lobe of the liver is not as pointed as *lobulus anonymus*?

The brain is generally admitted to be one of the most intricate organs of the body; but however complex it may be, it has been rendered infinitely more obscure and perplexing by the technicalities with which it has been enveloped. More than fifty technical terms have been applied to certain portions of this organ, and all for what purpose? Does any one of these terms impart a clear conception of the structure, or even of the appearance of a single cerebral process? Can the use of such ridiculous terms as *corpus callosum*, *thalamus nervi optici*, *tænia semicircularis geminum*, *colliculus*, *pes hippocampus*, *fornix*, *nates*, *testes*, *vulva*, *anus*; can the use of such ridiculous appellations assist the student in attaining a knowledge of this most important organ? There is not the shadow of correspondence between the word and the thing. We could almost believe that some waggish knave had been busily at work in attempting to caricature the science of anatomy. The numerical nomenclature, however, renders all this "indigesta moles," order and simplicity. When we view the brain as consisting of three great divisions, five cavities, and a certain number of processes connected with each cavity, all of which can be easily distinguished from each other by numerical terms, the obscurity which surrounds the subject instantly vanishes.

I might proceed to show how all the other viscera in the body can be described and explained in the same manner; but this, I conceive, is uncalled for at present, as it is to a general view of the subject only that I mean to confine myself in this paper.

Besides the organs and viscera which constitute what is technically denominated the splanchnological system, there are in the body numerous bones, muscles, vessels, and nerves, for the names of which, technicalities are deemed quite indispensable. If, however, we be allowed to form certain divisions and subdivisions of the body (and this is no innovation), every bone, muscle, vessel, and nerve may be referred to and recognized with a precision, clearness, and facility, quite unattainable by the use of any technical nomenclature. We shall suppose it agreed upon that the whole body be divided into three parts, the *head*, the *trunk*, and the *limbs*; and that each of these be again subdivided, the head into two portions, the *brain-box* and *face*; the trunk into three portions, the *back-bone*, the *chest*, and the *basin*; and that the limbs, which are of two kinds, the upper and the lower, should be subdivided in a similar manner, the upper limb into *shoulder*, *upper-arm*, *fore-arm*, and *hand*, and the lower limb into *thigh*, *leg*, and *foot*. These are simple, but highly important, divisions of the human body; for however numerous the parts of

the body may appear when viewed in the aggregate, if thus broken down into well-defined regions or compartments, the perplexity ceases, the number of parts entering into each region being comparatively small.

If it be farther agreed, that in all our anatomical descriptions the body shall be viewed as continually maintaining the erect posture, with the upper limbs hanging perpendicularly by the sides, and the little finger turned towards the thigh, the terms which denote the aspect and position of the parts will be few and exceedingly simple. Let it be supposed, that while the body is maintained in the above-mentioned position, it should be bounded and intersected by the following straight lines:—First, a line drawn *over* the crown of the head, and parallel with the horizon; secondly, a line drawn *under*, and parallel with the soles of the feet; thirdly, a line extended from the head to the feet, and carried *before* the face and belly; fourthly, a line extended in a similar manner, but carried *behind* the body; fifthly and sixthly, lines extended from the head to the feet, and carried by the *sides* of the body; and, seventhly, a line which extends from the crown of the head, and which passes through the *middle* of the head and trunk, and falls between the feet, forming thus the axis of the body. These lines might receive names corresponding with their relative position, as *upper, lower, fore, back, right, left, and middle, or deep-seated*; and the same terms could be transferred to the position and aspect of any part whatever. The term *upper, or superior*, would then be applied to parts nearer the upper than the lower line; the term *fore* or *anterior* to parts nearer the fore than the back line; the term *lateral* to parts nearer the side than the middle line; and, as we have two sides, these can be appropriately distinguished by the terms *right* and *left*. By using one term only in reference to the axis or middle line of the body, or by the indiscriminate use of synonymous terms in reference to that line, great ambiguity may arise. To obviate this as much as possible, I would propose that two terms, with precise and distinct applications, should be given to that line. I would call that *middle, or mesial*, which is seated nearer to the axis than to the side; and that part *deep-seated, or central*, which lies nearer to the axis than to the periphery, while the part that lies nearer to the periphery than to the central line, I would call *superficial*. These terms have scarcely a technical appearance, yet they are sufficient for every purpose. They are adapted for explaining, not only the relative position of the great divisions of the body, but likewise the aspects and positions of the minutest parts. This is no innovation. The principle is acted upon in almost every French system of ana-

tomy, and among the French, descriptive anatomy has attained the highest degree of perfection. Having made these observations, we are now in some measure prepared to attend more particularly to the application of the numerical nomenclature.

1st, Many of the *Bones* have popular names, which are generally much more expressive than the technical. To the use of these I have no objection. At the same time I must be permitted to say, that the numerical names of the bones are still simpler and more expressive. I shall confine myself at present to the consideration of the applicability of the numerical nomenclature, to the bones, muscles, vessels, and nerves of the *upper limb* only.

There are 32 bones in the upper limb, and without those divisions of the limb to which we have already referred, the application of so many numbers would be attended with confusion: but when thus divided, the confusion is at an end. In the *shoulder* there are only two bones. Will not these be more easily remembered by the terms first and second bones of the shoulder, than by the absurd names, clavicle and scapula? When the student knows that the enumeration of the parts is uniformly made according to a systematic order, no confusion can arise. If he is taught to enumerate the parts, from above downwards, or from before backwards, or from the side to the middle, or from the superficial to the deep-seated parts, according to the circumstances of the case, he cannot possibly fall into error. The student knows, for example, that the bone denominated clavicle, is situated *before* the one called scapula, and according to this principle must receive the name of the *first* bone of the shoulder, while the scapula, which lies *behind*, can receive no other name than second bone of the shoulder.

In the upper-arm, only one bone exists; and is it not more consistent with truth, and consequently with science, to denominate it the bone of the upper-arm, than to call it the humerus, which means the shoulder—the shoulder indeed having little to do with the bone?

In the fore-arm, two bones exist, to which the ridiculous names radius and ulna are generally applied;—*radius*, from a supposed resemblance to the spoke of a wheel; *ulna*, because used in ancient times as a measure. These two bones lie parallel with each other, the one nearer the side-line than the other; and as we uniformly enumerate from the side-line to the middle, the radius will be denominated the first bone of the fore-arm, and the ulna the second.

The hand is one of the most complicated parts of the skeleton; but need I ask whether it has been simplified by the

multitude of terms that have been heaped upon it? We have a general division of the hand into three parts,—*carpus*, *metacarpus*, and *phalanges*. To the division itself, I have no objection; it is founded in nature; but might I not be permitted to inquire whether the technicalities that notify these divisions be absolutely indispensable? Might not 1st, 2d, and 3d division of the hand, prove as intelligible a way of expressing ourselves as the other? The eight bones of the 1st division have received names, indicative of their form, or relative size—*scaphoides*, *semilunare*, *cuneiforme*, *pisiforme*, *trapezium*, *trapezoides*, *magnum*, *unciforme*. Not one practitioner in a hundred remembers these names, after he is 12 months in practice. For what end, therefore, are they applied? All that practitioners, in general, remember is, that there are two rows of bones, an upper and a lower, and that there are four bones in each row. Now, I maintain that the numerical nomenclature is better adapted for impressing these facts upon the mind, than any other nomenclature whatever.

The second division of the hand consists of five bones, which run parallel with each other; and as we enumerate them, like others holding a similar relationship, from the side-line to the middle-line of the body, the terms 1st, 2d, 3d, 4th, and 5th bones of the second division of the hand, will clearly point them out, and distinguish them from all others.

It is scarcely necessary to show how the numerical nomenclature may be applied with effect to the third division of the hand—the fingers. We enumerate them upon the principle which was applied to the other parts of the hand. Hence we have the 1st, 2d, 3d, 4th, 5th, counting, according to the above mentioned principle, from the thumb: and the 1st, 2d, or 3d pieces of the respective fingers, the enumeration of the pieces being from above downwards, in conformity with the general principle stated above.

2dly, There is less philosophy and principle pervading the nomenclature of the *Muscles* than any other department of anatomy. Some of them receive names from their form, as *trapezius*, *rhomboideus*, *teres*, *quadratus*; others from their supposed structure, as *semitendinosus*, *semimembranosus*. Many receive their names from their osseous attachments, as *sterno-cleido-mastoideus*, *sterno-hyoides*: more from their supposed uses, as *flexors*, *extensors*, *pronators*, *supinators*, *abductors*, *adductors*. Some take their names from the course and direction of their fibres, as *rectus femoris*, *rectus abdominis*, *transversus abdominis*, *obliquus superior oculi*. Others apparently from no assignable cause but the whim of the discoverer, as *vastus externus*, *vastus internus*,

massa carnea Jacobi Sylvii, sartorius. After viewing such a heterogeneous mixture of names, it is refreshing to contemplate the simplicity and universal applicability of the numerical nomenclature.

The muscles of the upper limb are, in the first place, arranged into those of the shoulder, upper-arm, fore-arm, and hand; and, in enumerating the muscles in each department, we proceed upon the general principle formerly laid down, and which was explained when illustrating the application of this nomenclature to the bones. Five muscles are situated on the shoulder: four of these muscles lie on the posterior surface of the second bone of the shoulder, and one on the anterior surface of the same bone. According to the general principle to which we have already referred, those on the back surface of the bone will fall to be enumerated before the one on the fore surface, because the former are more superficial than the latter. But how are we to distinguish the superficial muscles from each other? According to the above mentioned principle, the one seated nearest the upper line of the body falls to be first enumerated, and the others in succession downwards. In accordance with general principles, then, the arrangement is exceedingly simple. The supra-spinatus will be the 1st muscle of the shoulder, the infra-spinatus the 2d, the teres minor the 3d, the teres major the 4th, and the subscapularis, which requires to be enumerated after the superficial, is the 5th muscle of the shoulder. The numerical names of these muscles is infinitely more simple and expressive than the technical. By the technical nomenclature, only one of these muscles takes its name directly from the bone on which it lies, and consequently only one of them has a reference to the shoulder. Other two are named from their connexion with a certain process of the second shoulder bone—a process, too, the name of which is common to many others. The names of the remaining two muscles are perfect misnomers. They announce that the muscles are round, whereas every tyro in anatomy can tell that they are quite flat.

The muscles of the fore-arm are five in number, and generally receive the following names—deltoid, biceps, coracobrachialis, brachialis anterior, and triceps. These names may appear sufficiently expressive, when once we are familiarly acquainted with them; but, in reality, can any one of them, with the exception of brachialis anterior, lead us to a knowledge of the position of the muscle to which it is applied; and how should *that* muscle monopolize the name of the anterior muscle of the brachium? Do not the biceps and coracobrachialis lie there, as well as the muscle styled brachialis

anterior? When we take an unbiassed view of these muscles, we find that the deltoid lies on the outside of the upper-arm bone, that the biceps, coraco-brachialis, and brachialis anterior, lie on the fore part of the bone, and that the triceps is situated behind. Here then we have a natural threefold division of these muscles. In the first division, we have one, the deltoid, which might be called the lateral muscle of the upper-arm, because it is seated nearer the side line than any of the others. In the second division, we find three muscles—the biceps, coraco-brachialis, and brachialis anterior, which cannot receive more appropriate names than 1st, 2d, 3d anterior muscles of the upper-arm. And from the triceps lying on the posterior aspect of the bone, it may be expressively denominated the posterior muscle of the upper-arm.

The muscles of the *fore-arm* are twenty in number, and all the names and classifications of these muscles, which are found in our most popular systems, impart, I think, an air of complexity and difficulty to the subject, which naturally does not belong to it. We find them arranged frequently into pronators and supinators, flexors and extensors of the whole hand, and flexors and extensors of the fingers. Now, although this classification may be useful in enabling us to form an idea of the combined action of certain muscles of the part, it tends to impart a very erroneous idea of the actions of these muscles individually, and cannot possibly lead the student into a knowledge of their position. A more simple and useful arrangement is that according to their position. Three muscles lie on the outside of the fore-arm, eight on the front, and nine behind. Now, could not these muscles receive highly expressive names indicative of their very positions? We should then have the lateral, anterior, and posterior muscles of the fore-arm; and to particularize them farther, we have only to use the numerical terms, according to the principle stated above. When we are acquainted, then, with all the muscles that enter into these regions, and know at the same time the principle upon which the examination of them proceeds, we not only by this simple contrivance, form effective names for these muscles, but we at once get quit of a host of technicalities, which are admirably calculated to bear down the memory and mislead the judgment.

The muscles of the *hand* are generally considered a perplexing part of anatomy. But although somewhat numerous, they are by no means complicated. If we adopt a natural arrangement of these muscles, and express ourselves concerning them in simple and intelligible language, all will appear plain and easy. Nature seems to have arranged them into three sets—1st, those forming the ball of the thumb; 2dly, those constituting

the ball of the little finger; and, 3dly, those that lie in the palm of the hand.

The muscles of the thumb generally receive the following names—abductor pollicis, flexor ossis metacarpi pollicis, flexor brevis pollicis, and adductor pollicis. These names express, no doubt, the principal uses of these muscles, but they do no more. Whereas the terms 1st, 2d, 3d, and 4th muscles of the thumb, enumerating them according to fixed principles, express the precise relative position of these muscles; and I am bold to maintain, that a name that would lead a surgeon to the situation of any part, is infinitely more valuable than one that would give him an idea of the use and not of the locality of the object.

The muscles that form the ball of the little finger are likewise four in number, and when enumerated from the superficial to the deep-seated parts, and from the side towards the middle line of the body, the names 1st, 2d, 3d, and 4th muscles of the little finger, will clearly indicate their situation. According to this arrangement, palmaris brevis would be the first, flexor brevis minimi digiti the second, abductor minimi digiti the third, and adductor minimi digiti the fourth.

The muscles in the middle of the hand or palm are eleven in number, and when named, as many of them are, according to their uses, they are exceedingly perplexing. The most natural arrangement is according to their situation; and when arranged and studied in this way, they never can be forgotten. We find these muscles arranged into three layers, which may with propriety be denominated the 1st, 2d, and 3d layer, or the superficial, middle, and posterior layer of the palm. The superficial muscles of the palm are the four lumbricales; the middle layer consists of the three palmar interossei, and the posterior layer of the four dorsal interossei. These natural divisions cannot perplex, and are of the highest utility. After they are thus arranged, how easily can any of the muscles be named, and referred to by numbers alone! The situation of the *lumbricales* may be forgotten, but how is it possible to forget for a moment the situation of the 1st, 2d, 3d, and 4th superficial muscles of the palm! The technical names frequently given to the muscles that constitute the 2d and 3d layers in the palm, can hardly be remembered for a day; but by the use of the numerical nomenclature, these muscles become exceedingly simple. Their names can never be forgotten so long as the muscles themselves are remembered.

3dly. The *Vascular System* comprehends three sorts of vessels: one sort commonly called arteries, through which the blood moves from the heart to every assignable point of the system;

another sort veins, which return the blood from every part of the body to the heart; and a third sort commonly denominated lymphatics or absorbents, but regarding the use of which a difference of opinion exists among physiologists. Is it not strange that terms so palpably absurd as *artery* and *vein*, terms which were introduced in the darkest ages of anatomy, and derived from theories which have been proved long since to be utterly unfounded—is it not unaccountably strange that these terms should still be in use, although Harvey has lived, and the truth of his transcendent doctrine is known and universally admitted?

I have long been of opinion that such terms as *primary*, *secondary*, and *ternary* vessels are far less objectionable than arteries, veins, and lymphatics. The artery I would denominate *primary vessel*, because it is not only first in point of surgical importance, but likewise because it carries the blood directly from the heart. As the veins return the blood to the heart, forming thus the second link in the great chain of the circulation, they might be denominated *secondary vessels*; whereas the lymphatics, both from their minor size and inferior surgical importance, can claim the third place only, and may thus be aptly enough designated *ternary vessels*.

More than 500 arterial ramifications have received names, and amid such a host of technicalities, it cannot be very surprising that some few of them should be objectionable. Indeed, with the exception of some of the larger arterial trunks, it is difficult to point out one, the name of which is not fundamentally bad, or at least calculated very much to mislead the student. I do not at present advert to such terms as *aorta*, *arteria innominata*, *carotidea*, *vertebralis*, *collateralis*, *recurrens*, &c., but I refer to more common terms, such as those derived from the names of the parts upon which the vessels are ramified. Thyroid, lingual, facial, posterior auris, occipital, &c., are of this description, and the terms at first view may appear quite correct and expressive. But a very little consideration will satisfy us that names of vessels formed on this principle cannot be correct, that such names must express either too much or too little, and therefore ought to be rejected as unscientific. This circumstance arises from the very economy of the vascular system. No one artery is exclusively confined to one organ, and every organ is supplied with primary vessels from a variety of sources. Did the artery, for example, which we denominate superior thyroid, send its branches exclusively to the thyroid gland, then the name would be highly appropriate and expressive. But when we find that it supplies the hyoid bone, and some of the muscles

connected with that bone, that it likewise ramifies upon the sterno-mastoid muscle and larynx, as well as upon part of the thyroid gland, it clearly can have no right to the exclusive appellation, thyroid. It might with as much propriety be denominated hyoideal, sterno-mastoideal, or laryngeal, as thyroid. Now all the arteries of the body are precisely in this state. Not one arterial name expresses the extent of the corresponding arterial ramifications. Nor can a term with such an extent of signification be invented, for we cannot tell the full extent of any arterial ramification. A very small branch is frequently found to carry its vivifying streams into the substance of bones, cartilages, ligaments, muscles, vessels, nerves, cellular membrane, and skin. What term, then, could be invented to indicate such a distribution? Before we can attain simplicity in the nomenclature of the blood vessels, we must leave this track of investigation altogether.

The most variable parts of the vascular system are the minute branches—those that spread and terminate on the substance of our organs. We do not find two bodies in which these branches ramify alike. Yet, strange to tell, this is the very part of the vessels that has been exclusively attended to when allotting to them their names. The vascular trunks, and the branches that immediately pass off from the trunks, are far less variable than the minute ramifications. They are besides of paramount surgical importance. To them, therefore, our attention ought to be particularly directed.

The great trunks of the vessels might have their names from the great divisions of the body to which they correspond, or over which they pass, as the vessels of the *shoulder*, of the *arm-pit*, of the *upper-arm*, of the *fore-arm*, of the *hand*; and should two or more vessels of the same description exist in any one of these compartments, as in the fore-arm and hand, these could be most satisfactorily distinguished from each other by numbers—it being clearly understood that in our enumeration of such vessels, we proceed upon the principle adverted to in a foregoing part of this paper. In the *fore-arm*, for example, we find two great primary vessels; one which corresponds with the first bone of the fore-arm, another with the second; and in the hand two great primary vessels likewise, the one lying more superficially than the other. These, then, I think, could be distinguished from each with the utmost facility, by such names as the 1st and 2d primary vessels of the fore-arm, and the 1st and 2d primary vessels of the hand. So far then as the names of the vascular trunks are concerned, we would deviate very little from the names at present in constant use. But how are the

branches that pass directly from the trunks to be distinguished? Most effectually by numbers. The humeral, or great primary vessel of the upper-arm, for example, sends off three branches, which usually receive the following names—arteria profunda superior, arteria profunda inferior, and ramus anastomoticus magnus. Now can these names bear a comparison with the numerical, either for elegance or simplicity? The 1st, 2d, and 3d branches of the primary vessel of the upper-arm, are the numerical names. The technical names cannot give the least idea of the situation of the vessels. Many arteries in different and opposite parts of the body receive the name of profunda; and where is the branch that cannot be denominated anastomoticus, as well as those to which that name has been applied? But the numerical names of the vessels are easily remembered, lead to no misconception regarding their distribution, and are indeed sufficient for every purpose for which a name can be used.

4th.—It would be superfluous, I conceive, after what has been stated, to enter into any prolonged discussion regarding the applicability of the numerical nomenclature to the *Nerves*. Numerical names have been for a long time introduced into this part of anatomy, and with triumphant success. In no part of anatomy is the nomenclature so perfect and unobjectionable. Indeed, it was from observing the effect with which it was applied to the nerves, that I was first led to the idea of its more extended application. This kind of nomenclature has hitherto been confined to the trunks of the nerves only—to those that arise directly from the brain and spinal cord—and the regularity with which they arise, and their similarity of appearance, would naturally suggest this mode of distinguishing them. But the principle may be easily extended to all the principal branches of the nervous system. Let us suppose for a moment that we are confining our attention to the nerves of the upper-limb. We find, in the first place, that they arise from a nervous network, with which at present we have little to do, and afterwards ramify upon every part of the extremity. When we carefully examine these nerves, then, we find that they arise in succession from different parts of the nervous network, and can therefore be as easily arranged according to the order of succession in which they arise, as those that spring more directly from the root of the nervous system.

Time will not permit me to be more particular at present; but I hope I may in conclusion remark, that the introduction of such a nomenclature as the numerical, would be attended with manifold advantages to anatomy—that it would tend to

remove an oppressive load from the science—that it would change its rugged and barbarous exterior, and exhibit it to the world in its native simplicity and beauty.

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IX. *Case of Ascites, in which the Abdomen was tapped through the Fundus of the Bladder, and an attempt made to establish a Fistulous Communication between the Bladder and Abdomen.*

By ANDREW BUCHANAN, M.D. One of the Surgeons to the City Poor.

THE mode of operating, and the subsequent treatment adopted in the following case, are I believe new; at least, I have not been able to find any traces of them in the surgical works I have looked into, nor in the course of the inquiries I have made among my professional friends. In the first volume of the Medical Communications (p. 361), Mr. Henry Watson describes an operation for ascites, which he had practised three times successfully. Finding the vagina forming an external protrusion from the pressure of the fluid above, he introduced the trocar into the abdomen in that situation, preferring it to one higher up, as ensuring the more complete evacuation of the dropsical fluid. Mr. Watson's operation more nearly resembles the one here proposed, than any other I have read or heard of. My researches, however, upon this subject have not been very minute, conceiving it of little moment. It is far more important to inquire, whether the operation described below be in any respect superior to the one commonly practised, and whether the plan of treatment subsequently adopted be calculated to supersede the necessity of repeating the operation; but it will be best, before entering upon these inquiries, to give the history of the case which suggested them.

Mrs. H. a middle-aged, married woman, in October 1826, was put upon the list of sick paupers, for ascites. By her account, the swelling of her belly had commenced about 18 months before, and after increasing to such a size as to induce her to consider herself pregnant, had gradually subsided, without the employment of any medicinal means. Twelve months ago, however, the swelling again appeared, and soon after became attended with anasarca of the legs.

When I first saw her, the abdomen was very much distended with fluid, the legs anasarcaous, and the urine scanty, with much debility and emaciation. Deriving no relief from the purgative and diuretic medicines prescribed for her, she was sent to the Infirmary. Medicinal treatment was there in like

manner unavailing, and she was tapped before leaving the house. On the 10th of November she again came under my charge; and as tapping was the only mode of affording her relief, that operation was performed upon her in the usual way, three times successively, each time about 28 pints of albuminous fluid being drawn off.

When the belly was emptied of fluid, and the hand applied to the left side, the spleen was felt very much enlarged. I was therefore led to think, that the liver was most probably diminished in size, and its substance converted into yellow tubercles, that being a combination I have frequently met with, and always found to occasion an incurable ascites.

The poor woman's case seemed thus utterly hopeless; for it was clear she could not long survive, if harassed by the continual re-accumulation of the water, and the repetition of the tapping. I was therefore induced to try an operation, which, if it succeeded according to my wish, would procure her more permanent relief. This operation consisted in tapping the belly through the upper and fore part of the urinary bladder. I conceived, that in the first place, the water might be drawn off in this way much more completely, than by the usual operation; for the puncture being made in the most depending situation, the whole fluid could be drawn off, whereas, when the puncture is made higher up, a considerable portion must remain lodged in the cavity of the pelvis. In the next place, I imagined, that the re-accumulation of the fluid might possibly be prevented, by the wound remaining in a fistulous state, being prevented from closing by the secreted serum constantly oozing downward into the bladder, to be thence discharged along with the urine. I had, however, well considered the possible danger and inconvenience that might be produced. I did not apprehend any difficulty in performing the operation; for it appeared to be, as I have since found it, both safe and simple. What I was most afraid of, was the risk of the urine getting into the cavity of the abdomen. On consideration, however, that risk did not appear so great as I at first supposed. If the contraction of the bladder were the sole expulsive power by which the urine is evacuated, that power, it is clear, would act with equal effect in forcing the urine through a hole in the fundus of the bladder, as through the orifice of the urethra. The principal agents, however, in expelling the urine are the diaphragm and abdominal muscles, the action of which must tell chiefly on the lower part of the bladder, while it tends to shut up any opening in the fundus. This reasoning so far satisfied me, that I judged it right to attempt the operation, as the chance of doing good to the patient in

this way had, in my mind, a decided preponderance. I therefore consulted my friend Mr. Watson on the subject, and had the satisfaction to find that his opinion coincided with my own. With this coincidence I was the more gratified, as, from the extreme exhaustion of the patient, it was very probable, that whatever operation was performed, death might soon after ensue, and it might then have been supposed that the mode of treatment had accelerated her fate.

Next day (Thursday, January 4th, 1827,) I proceeded to perform the operation, assisted by Mr. Alexander. The patient lay upon her back across the bed, her feet resting on a stool placed at the bedside. The instrument employed was the curved trocar, for puncturing the bladder in cases of retention of urine. The canula was first introduced along the urethra, and the point of it carried towards the upper and fore part of the bladder, pushing it as far up as possible, so as to put the coats of the bladder over its orifice upon the stretch. The stilette was then passed along the canula, and made to pierce the bladder, which it did with such ease, that no sensible resistance was experienced. On withdrawing the stilette, the water flowed in a full stream, till nearly as much had been drawn off as on any former occasion. Some interruption then took place from time to time, seemingly from the fluid subsiding below the level of the orifice of the canula, or from portions of intestine covering it up. By drawing the instrument downwards, however, and shifting it about, the water continued to flow freely, and upon the whole, a greater quantity was drawn off than had ever been done before, although a shorter period intervened between this and the last operation, than on any former occasion. Some pain and bleeding were produced on passing the canula along the urethra, the orifice of which was obstructed by large carunculae; pain was also excited by the stretching of the bladder, and the piercing of it.

Felt much relieved by the operation. Passed the night without pain, but was restless and slept little. Vomited this morning, and still feels squeamish. No pain of abdomen on pressure. Pulse, as for some days past, about 100. Tongue also as before, pretty natural after drinking, but soon becoming dry in the middle. Several loose stools. Urine passed freely, and in much larger quantities than before the operation, containing some clots of blood, most probably from urethra. Ordered some soup.

January 6th.—Sickness diminished, and no pain anywhere. Moans, however, as if uneasy. Belly tympanitic. Soup, of which she had taken about four times the quantity ordered,

had refreshed her, but produced purging, probably also the tympany just mentioned. Urine passed in a forcible stream, and, on introducing the catheter immediately after, bladder quite empty. Castor oil and a little solid food.

7th.—Vomiting returned; only of ingesta. No pain. Tympany diminished. Pulse 108, softer than yesterday. Tongue moist. Urine comes freely. Castor oil not taken. Relished food. Common bolus.

8th.—Pulse 104, soft. No vomiting since 10 last night. Less urine. Still tympany.

9th.—Pulse 100, soft. Tongue moist and pretty clean. Vomiting occasionally; also pain of stomach, relieved by some pepper taken in warm milk. Urine more scanty.

10th.—Pulse 108. Tongue clean and moist. Much debility. Belly fluctuates. Urine very scanty.

14th.—Pulse 84. Tongue moist. Abdomen larger, with distinct fluctuation. Urine scanty.

20th.—On the evening of the 17th, the swelling and tension of the abdomen had increased so much, that, at her own urgent request, the water was again drawn off. The operation was performed exactly in the same way as before. She seemed to suffer very little pain, except from passing the instrument along the urethra. When about 24 pints had come away, the canula was withdrawn, although there was still sensible fluctuation in the abdomen. This was done with the view of facilitating the formation of a fistulous opening into the bladder. Next day, when I called to see her, she was out of bed, sitting by the fire-side, which she had not been able to do since the previous operation. Urine passed with ease, but in small quantity, much less than the day after the first operation. On examining it, and comparing it with some voided before the tapping, it had exactly the same appearance. It was high-coloured, and deposited on cooling a copious pink sediment, *resoluble* on applying heat. No trace of albumen could be detected in it, either by heat, or nitric acid. When visited to-day, had gone out.

February 8th.—On the 23d ult., the swelling had increased so much, that at her own request, the tapping was again resorted to. As, from the result of the two trials already made, there did not seem much chance of a fistulous opening being established by the mere oozing of the dropsical fluid, I began to think of some other means of ensuring the accomplishment of that object. Mr. Watson suggested the introduction of an elastic catheter, to which, however, I preferred a catgut bougie of the smallest size, which would not prevent the transmission of the urine along the urethra. When the

water had been nearly drawn off, I intended to introduce the bougie through the canula, and then withdrawing the canula, to leave the bougie in its place, to be there fastened, and kept for some days, occasionally moving it a little.

In performing the operation on the two previous occasions, the principal pain was produced by the sharp edge of the canula irritating the sides of the urethra. To prevent this, I passed along the canula, before introducing it, a white bougie, the end of which exactly fitted the upper orifice of the canula, while the body was shaven down so as to admit of its being passed. By this means the canula glided along the urethra without producing any pain. The bougie being then withdrawn the stilette was introduced, and the fundus of the bladder pierced as before. The water did not come away so freely as formerly; and it was likewise tinged with blood. These appearances induced me to think, that the end of the canula had not passed fairly into the abdominal cavity, but was overlapped in part by a fold of the bladder. I have seen the very same appearances produced by the end of the canula not passing fairly beyond the parietes of the abdomen. When about four pints had been drawn off, we were obliged to desist by a diarrhœa, to which the patient had been subject for some days previous.

This accident prevented the trial of the proposed plan of introducing the bougie, and the patient conceiving an aversion to the new mode of operating, the water was drawn off in the usual way, on Sunday the 27th ult. Fully more than the usual quantity came away.

February 9th.—Yesterday the tension of the belly again producing the most distressing suffering, the patient wished the water drawn off; and though her debility was now so extreme, that I entertained no hope of her long surviving, yet as I had already more than once been deceived in my prognostic regarding her, I judged it right, to give her the small chance, which the use of the bougie held out, of obviating the necessity of repeating the tapping. The patient was easily induced to consent to the trial, her only objection to the *bladder operation*, arising from the exposure of her person, while she preferred it as giving her less pain than the other operation, the cut required for performing which, on the 27th ult., was not yet healed.

The canula being introduced armed with the bougie as on the last occasion, the water flowed away in a full stream till nearly the usual quantity was obtained. Then, while there was still distinct fluctuation in the belly, and the stream of fluid uninterrupted, the catgut bougie was passed along the

canula, till it had gone a couple of inches beyond the upper orifice into the abdomen, as was ascertained by two marks on the bougie, one the length of the canula from its upper extremity, and the other two inches farther off. The bougie being now held firmly, the canula was drawn over it, as also over another larger one, applied to the end of the small one, for the purpose of keeping it steady in its place, till the canula was completely disengaged. Tapes were fastened to the bougie in the same way as for keeping a catheter in the bladder. The debility of the patient was so great, that I was afraid more than once, she would not outlive the operation.

During the night, about a quart of fluid came away. To-day about 3 P. M., some water was obtained for examination, but it gave no trace of albumen. The patient had, however, previously been out of bed in a room adjoining her sleeping-room, so that the end of the bougie might have been displaced. Says she feels easy. Pulse quick and feeble.

February 24th.—When visited on the 10th inst., the day after last report had gone out, and that day, as she afterwards stated, the bougie came away. On the 20th, the water having re-accumulated so as to produce more swelling than on any former occasion, the fundus of the bladder was again penetrated, and 48 pints drawn off. The stream not flowing freely at first, I withdrew the canula and made a second puncture. The increasing debility and wretched accommodation of the patient, prevented any farther attempt at the establishment of a fistulous opening. Next day felt much relieved, but very feeble. To-day, when visited, was sitting by the fire, in a room adjoining that where she slept. Swelling beginning to return, but not yet productive of any uneasiness.

March 3d.—On the 27th ult., I was very much surprised at receiving a visit from my patient. She came to inform me of the re-accumulation of the water, and I promised to draw it off for her next day. Her extreme emaciation, hollow eyes, and ghastly appearance, contrasted with the extraordinary prominence of the abdomen, excited the attention of the passengers, as she walked along, with no other support than that of a stick. As this visit showed a degree of vigour, I had no idea she possessed, I resolved to attempt once more the establishment of a fistulous opening in the bladder. The mode of doing it, I had been thinking of some time before, but not expecting so soon to have an opportunity of trying it, I had only adverted to the general principles of the operation, without attending sufficiently to the mode of reducing them to practice. I proposed, before the fluid in the abdomen was fully evacuated, to introduce through the canula a small

inflated bladder of a longish shape. This bladder, being introduced into the canula according to its long diameter, would admit, by a little compression, of being forced along, and, when again free to expand in the abdominal cavity, would float in the dropsical fluid, while its size and buoyancy together, would prevent it from descending through the opening made by the trocar. Attached to this floating bladder a silk thread was to pass into the urinary bladder, and thence along the urethra, to be fastened externally. The essential part of the apparatus, however, was to consist of three or four thick worsted threads, having the same attachment, at the upper end, as the silk one, and passing along with it into the bladder, but no farther, their lower ends being fastened to the portion of the silk thread within the bladder. Along these worsted threads, I presumed, the dropsical fluid would ooze down into the bladder, partly by gravity, and partly by capillary attraction, in the same way as in the well known experiment, by which a tumbler of water may be emptied by similar threads passing over its side. When this apparatus had remained a sufficient length of time to prevent the wound of the bladder from closing, or if, from the occurrence of irritation, or any other cause, it were thought advisable to withdraw it, that could at once be effected by re-introducing the canula, and guiding it upward along the silk thread, till it came to the small bladder, which being punctured with a fine stilette, the whole could be withdrawn. If, on the contrary, no irritation supervened, and it were not judged prudent to withdraw the apparatus, it might perhaps be possible to dispense altogether with the silk thread, passing along the urethra, that thread terminating like the worsted ones in the urinary bladder, and being there attached, exactly as at the other end, to a small inflated bladder, which would prevent the threads from being drawn up into the abdomen, and probably also, by floating in the urine, render them less apt to be crusted with saline matter.

A small bladder, strong enough to admit of the necessary compression being the only thing wanted, I first thought of the swim-bladder of a fish. Next day I procured some fish, but found the swim-bladder, and also the bowels, far too weak for the purpose. I delayed another day, that I might try the intestines of some birds, but these being also insufficient, I thought I could no longer protract the suffering of the patient by deferring the operation. I accordingly punctured the bladder upon the 1st inst., drawing off about the usual quantity of fluid.

March 8th.—When visited, the day after the operation of the 1st inst., she had gone out, and I heard no intelligence of her

till the 5th, when her husband came to inform me of her being very ill. That afternoon I visited her and found her speechless, and exhibiting no mark of sensibility, except moaning when moved from one position to another. By the account of her husband, she had been nearly in the same state since the 3d inst. She got some whisky toddy, and survived till yesterday morning.

Dissection.—There was a good deal of swelling of the belly, arising partly from a tympanitic state of the upper part of the colon, and partly from the re-accumulation of the dropsical fluid, with which the pelvis, and about a third of the abdomen were filled. The liver was shrunk into a very small compass in the right hypochondrium. It was nodulated, and uneven on the surface, and completely tuberculated throughout. Spleen considerably enlarged. Kidneys healthy. The peritonæum had everywhere its usual glistening aspect, totally free from any appearance of inflammation, as might indeed have been inferred from the copious secretion of serum, which could not have gone on, had an attack of inflammation supervened on the last tapping.

The state of the bladder was the point I was most anxious to ascertain. On the fundus of it five marks from puncturing could be distinctly recognized. They were all between the uterus and the symphysis pubis, three of them within a few lines of each other, and the other two about an inch distant. The last two punctures could be most easily recognized. The most recent, made six days before death, had left a spot of a deep red, or rather greyish black appearance, rather larger than the orifice of the canula. It had very much the appearance of a spot produced on the skin by blood extravasated under the cuticle, being distinctly circumscribed, and the surrounding peritonæum perfectly healthy, and free of inflammation. The muscular coat had adhered, the opening being perfectly closed. The wound from the second last puncture, made fifteen days before death, had exactly the tricuspidate shape, and the size of a leech bite, three minute ulcerated lines meeting in the centre, and the ulceration not extending deeper than the peritoneal coat. Nothing could be more exact than the resemblance of this wound to a leech bite, which had been prevented from healing by the application of a poultice, only there was neither surrounding redness nor swelling. In a third wound, the tricuspidate shape could no longer be recognized, but a very small superficial ulcer was still distinctly visible.* In a fourth wound, most probably made 27 days

* This wound I was disposed to think of the same date as the last, two punctures having been made at the operation of the 20th ult.

before death, I was at a loss to say whether any ulceration remained, but I was inclined to think there was still a little. The fifth puncture was completely cicatrized, and observed only when minutely inspected. As the operation was performed six times, and at one of them the bladder was twice punctured, the situation of two of the wounds remained undiscovered. I wished to bring away the bladder entire, that I might examine it more minutely at leisure, but this the poor woman's husband would by no means permit; and while endeavouring to persuade him to allow it, I regret to say, that I forgot, while it was yet in my power, to examine the state of the mucous coat of the bladder.

The history of the preceding case has been so minute, and the discussion of the most important parts of it so blended with the historical details, that there is little room left for general observations. I shall, however, offer a few remarks, first, on the operation of tapping through the fundus of the bladder; and, second, on the establishment of a fistulous communication between the bladder and abdomen.

The operation of tapping the abdomen through the fundus of the bladder presents no difficulty in the performance, to any one who can introduce the catheter, and knows the relations of the bladder to the other viscera of the abdomen. For operating on the female, perhaps no better instrument could be devised than the armed canula, and stilette employed in the preceding case. In the male, the operation would be more difficult, from the length and curvature of the urethra, and the want of a proper instrument; it would, however, I think, require little ingenuity to adapt such an apparatus to a male catheter, as would perfectly answer the object in view. Of hæmorrhage, there seems to be less chance in this operation than in the ordinary one; and as for wounding the viscera of the abdomen, I should think it scarcely possible, with an ordinary degree of care; for not only are the intestines kept out of the way by the position of the patient, and the accumulation of fluid in front of them, but if the canula be carried fairly up to the fundus of the bladder, the stilette will pierce the membrane stretched over the mouth of the canula, with as much ease as a bit of paper, and it may therefore be introduced with so much caution, that a noose of intestine accidentally above it (if not actually adherent) would be pushed aside without being wounded. The pain produced by puncturing the bladder is very inconsiderable, not greater, I should think, than that occasioned by opening a vein of the arm. The dropsical fluid is more completely evacuated than by the ordinary operation. The wound inflicted heals readily,

and does not occasion any inconvenience while it remains open. The patient in the preceding case was generally out of bed, and felt no pain the day after the tapping; whereas, when the ordinary operation was practised, the wound was yet painful and unclosed, when it became necessary to repeat the operation. Lastly, if, as is thought by many, the inflammation of the peritonæum after tapping is in some degree to be ascribed to the access of the atmospheric air to the abdominal cavity, that cause of irritation is avoided by operating through the bladder. To counterbalance these advantages must be placed the risk of introducing urine into the abdominal cavity; the amount of that risk, however, can only be determined by experience; and so far as the experience derived from the preceding case entitles us to judge, it does not constitute a serious ground of apprehension.

As for establishing a fistulous opening between the bladder and abdomen, by some such apparatus as that described in the report of March 3d, I think the objects to be obtained of sufficient importance to warrant the experiment. Many objections to it have indeed occurred to myself, or been mentioned to me by my professional friends, as the insufficiency of the apparatus, owing to the collapse of the bladder from the pressure of the superincumbent fluid—the danger of the influx of urine into the abdomen—the irritation of a foreign body in the bladder and abdomen—the formation of a hernia, and the furnishing a nucleus for urinary concretions. Objections like the last, founded on circumstances which can only become formidable in the course of years, can scarcely be urged against a plan, intended to relieve a disease, which threatens to be speedily fatal. What weight should be attached to the other objections, it would, as appears to me, be idle to examine, since the most ingenious reasoning, derived from general principles, can never produce conviction in questions which experiment alone can decide. If the operation of M. Dupuytren for the cure of fistula lachrymalis had been first announced to the world, not under the sanction of experience, but in a speculative form, there can be little doubt, that critics would have contended in denouncing it as visionary and impracticable. I cannot but think, therefore, that to form a decided opinion of the practicability of the plan here proposed from abstract arguments alone, would be little consistent with the spirit of the inductive philosophy. How the bladder will comport itself in the circumstances here supposed, and how the adjacent parts will be affected, we do not know, because we have not tried. Whatever conjectures we may form as to the probable result of the experiment, it is by trying it alone that a certain judg-

ment can be obtained. I should be glad, therefore, that this paper were to fall into the hands of medical gentlemen having the charge of hospitals, or other public institutions for the cure of the sick, that if any of them were disposed to take the same views as myself of the mode of treatment proposed above, a trial might be made of its efficacy.

6, South Hanover-Street, April 11th, 1828.

X. *On the Treatment of Burns.* By A. D. ANDERSON, M.D.
Senior Surgeon to the Glasgow Royal Infirmary.

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 “*However people cry, 'tis nothing to cure a burn, yet by what I have seen of these cures from country or city, they are often very ill performed.*”

It cannot be denied that there is still much truth in this observation of Wiseman. Empiricism has prevailed to a great extent in the treatment of burns; and this is perhaps the strongest proof that can be adduced of the bad success attending the practice of the regular surgeon. The great proportion of deaths, the large and very troublesome sores, and the contractions and deformities produced, even where a cure has at length been effected, are also indicative of this fact.

In many instances, the extent and severity of the injury must doubtless prevent the possibility of a cure by any treatment; but in every case, and especially in the more severe, it cannot but be reckoned of paramount importance to possess the ready means of soothing and alleviating, instead of aggravating the torture of our patients. That the frequent removal of the applications is productive of great suffering, will scarcely be denied; but this is supposed to be a necessary evil in the attainment of a cure. Without attempting to discuss the merits of the various medicated substances which are generally used in this way, I content myself with stating, and I think I am able to prove, that the question as to the best application to burns is only to be decided by ascertaining what substance gives the most perfect protection and comfort at first, and can be longest retained on the part, without occasioning irritation, or interrupting the proper efforts of nature.

The treatment which it is the object of this paper to recommend, and which has naturally enough become popular in this district, is the immediate application of finely carded cotton wool, and its continued retention on the part, whether the injury has been occasioned by scalding or by actual fire.

This is said to have been originally an American practice; but I am informed it has long been in use amongst the inhabitants of the Greek islands. The first notice I had of it was of a

somewhat miraculous case, which, however, did not seem to have been too much so for my informant. A child, it was said, had fallen into a large pot full of boiling porridge, and in this way had been scalded over the whole body. The mother was at the time occupied in carding cotton, and had a quantity of the prepared article on the floor beside her. Having no one near her, she very naturally laid her infant amongst the cotton, covered him, and then proceeded to get assistance. How long it was before this was obtained, I cannot precisely state; but when a surgeon did come, there was no case for him to treat; for on removing the soft covering from her child, the distressed mother found him in perfect soundness of skin, smiling in her face. Only one explanation could well be given of this case, viz. that the porridge had not been boiling, nor even hot enough to produce more than acute temporary pain. Other, and well authenticated cases, however, were from time to time related to me, in which the popular use of this remedy was said to have been productive of the very best effects.

It will thus be observed, that I lay no claim to originality in the treatment referred to. I am very desirous, however, to obtain for it the favourable consideration of the profession; for although it is now many years since I first heard of its utility, I believe it has hitherto been almost entirely a popular, and not a professional remedy. I believe also, that to this circumstance much of the want of success, and much of the unmerited neglect of this practice, may fairly be attributed.

About the year 1823, I admitted several cases of burns into the Glasgow Royal Infirmary, to which cotton had been rudely applied previous to admission. In these cases, the cotton was retained on the parts for trial, but without the expected effect; for in none of them had there been any care taken, either in preparing or in properly applying the remedy; on both of which circumstances I am now convinced that much of the success depends. I have since seen a great many cases of the same kind; and others have come to my knowledge, in which, from the improper application, or the too early removal of the cotton, it has failed entirely in being useful.

Nothing, however, can be more satisfactory than the evidence in favour of this plan, when rightly adopted. The first case, indeed, which determined me to use it, was one in which the comparative merits of the old and new treatment were very well seen.

I. A healthy girl was admitted into the Royal Infirmary, on account of a vesicated burn, occupying both legs, the back of the thighs, and part of the nates. Previous to her admission, the right leg had been dressed with carded cotton wool,

which having absorbed the discharge, had now formed a close covering to the whole sore. The left leg had been daily dressed with the linimentum aquæ calcis, and discharged healthy pus. She had little uneasiness from the right leg, and the cotton was not removed until the third week, when a new and sound skin presented itself.

Poultices were first applied to the left leg, which, however, continued inflamed and acutely painful. It was afterwards treated by a great variety of applications, according to its particular state and appearance. At the end of the second month, there were still several troublesome ulcers in the seat of the injury, which, although frequently much reduced in size, did not cicatrize until the middle of the third month, when she was at length dismissed. The state of both limbs in this case corresponded so nearly, as to afford a pretty correct comparison; and the cotton was so obviously preferable to the usual applications, that I determined to try it more fully.

II. The next case was much more severe. This was a female, aged 20, whose clothes had caught fire while she was asleep in a state of intoxication. The face, neck, superior extremities, trunk anteriorly and posteriorly, as far as the loins, outside of the hips, inside of the thighs, and about the labia pudendi, were much burnt and sphacelated. The mental faculties were not impaired; but the pulse was imperceptible at the wrist, and the action of the heart was found by the stethoscope to be quick and very feeble. She had rigors, a cold skin, and occasional vomiting.

Laudanum, ether, and brandy were given, and the warm bath seemed in this case to be both agreeable and useful. Still she was in great misery; and it was not until the whole injured surface had been carefully enveloped in cotton, that she stated herself to be much relieved. The pulse and heat were gradually restored; the vomiting ceased, and her countenance expressed a corresponding increase of comfort. In this state she continued for two days. There was little local pain, and the parts were not touched. But at the expiration of this time, she died, as I fully expected, from the severity of the injury. No inspection of the body was obtained.

Here there was at least no discouragement to the repetition of the same treatment.

III. Another case, in a girl of ten years of age, corresponded in most particulars with that just noticed. In this case, the parts were all covered with a thin layer of what is called patent or Liverpool lint, and over this cotton wool was applied, so as to afford protection against pressure. This patient said that the dressings gave instant relief; and no one

who saw her before and after their application could doubt this for a moment. In this, as in the former cases, however, the injury was far too great to allow of recovery. The lint was not removed from any part, and she continued easy, and even comfortable, until the fourth day, when delirium came on, and she died. The brain was somewhat softer than usual, and presented numerous bloody points when cut. There were several ounces of serum effused at its base, and the veins of the pia mater were turgid. No morbid appearance was seen in the thorax or abdomen.

These cases showed the primary effects of the remedy in soothing and allaying pain, and the inexpediency, as well as the inutility, of frequently removing the dressings.

IV. The next case was that of a collier from an explosion of fire-damp, by which the face, left arm, and fore-arm, part of the right arm, and both ankles were scorched and vesicated. The cotton was applied immediately on his admission. He had several times been burnt before, and he now expressed in strong language the relief he experienced; and said, that he had never on former occasions, even when the injury was less, felt nearly so easy as under the present treatment. In a fortnight, the face was well, without any mark, and without removing the cotton until it came off of itself. About the tenth day, I examined the state of the arms, which I now think was improper. This was not repeated, however, and at the end of the fourth week, he was dismissed perfectly cured.

V. A labourer, 21 years of age, was next admitted, five hours after the explosion of gas in a coal-pit, by which the whole of the face, right arm, fore-arm and hand, left fore-arm and hand, and middle third of both legs were severely burnt. The parts were quite covered with vesications, except on the hands, where the thick cuticle was detached, and lay loosely upon the cutis, which was inflamed and moist. He complained of excessive pain in the injured parts. They were all carefully put up in cotton, and no point was left uncovered. On the following day, he said he had slept well, and was much relieved, being free of pain. Suppuration took place in a few days; but although the discharge through the cotton was very considerable, the first dressings were not removed from the limbs until the 13th and 14th days, and not until the 15th day from the face. They had formed a complete case for the tender parts, coming from the hands exactly in the shape of a glove, and like a mask from the face, so as to form very good specimens of the operation of the remedy.

The aspect of the parts at the first dressing was worthy of particular attention, in reference to the difference they exhib-

ited from burnt surfaces under any other mode of treatment. Many inches of new skin had already been formed along the whole circumference of the sores. The surface interior to this, which could scarcely be called a sore, and certainly not an ulcer, was, throughout its whole extent, on a level with the adjoining sound skin; and although inflamed and discharging pus, it could not be said that there was any solution of continuity. At first sight, the parts appeared to be covered with numerous small points of granulation; but from careful examination, I am inclined to think that these points are not properly granulations, but only the natural papillæ of the skin, denuded of cuticle, inflamed and enlarged, so as to present a granular appearance. In this opinion I am strengthened from observing the subsequent process of cure, which, except in cases of deep injury, always takes place without any appearance of cicatrization.

And here it is that the chief excellence of the present plan consists; for it is unnecessary to do more than allude again to the frequent, or rather the constant occurrence of large, hard, and contracted cicatrizations, even in what are generally looked upon as favourable cases of cure. I am quite sure that under the usual treatment, by frequent removal of the dressings, of whatever kind they may be, the parts in such a case as this, must have become open, granulating sores, of difficult and tedious cure, which would have left scars destroying the motions of the fingers, disfiguring the face, and probably producing ectropion in one or both eyes. The only change observed in this man's face was somewhat curious. He had previously been marked with small-pox, but after the removal of the cotton, this deformity was scarcely observable.

The cure of this burn may be said to have been accomplished at the end of the fourth week; but some part of the dressings did not separate so soon, and he was detained in the house for some time, partly on this account and partly as an example to the pupils, of the benefits of the practice adopted.

He retained the perfect use of every member, and, with the exception of a bright redness of the skin, had no mark of injury whatever.

Burns of the feet, which, in point of extent, are comparatively trifling, owing to the exposure and constant motion of the parts, are always very painful and tedious in healing, and frequently give rise to ulcerations which never heal at all, or at best, are constantly returning. For such cases the cotton is peculiarly suitable. The following is one of several cases which were so treated.

VI. A woman, 61 years of age, was admitted into the Royal

Infirmary ten days after having had the right foot scalded with boiling water. A large vesicle had formed on the back of the foot, which was opened, and poultices and ointments had since been applied. The cutis was now wanting from almost the whole back of the foot, which was occupied by a superficially ulcerated surface of a highly inflamed, but healthy aspect. The foot and ankle were swelled, and she complained of excessive pain, totally preventing sleep.

The part was put up in cotton, which was retained by a bandage. She slept well for the first time since the injury was received, and continued free of pain. The cotton was not removed for three weeks, when it came off in one piece, leaving a sound-skin, without any appearance of cicatrix. It is probable that this sore was healed for some time previous to the removal of the cotton, as she had walked about without uneasiness.

The next case showed the relief from local pain and irritation, procured by the cotton; but it was also a well-marked example of the most frequent cause of death in severe burns, viz. hydrocephalus.

VII. A boy, five years of age, was admitted an hour after he had been severely burnt, by his clothes catching fire. The feet and lower half of the legs were in some parts vesicated, in others the cuticle was removed, and in others the skin was of a dirty white colour, and dry. The superior half of the legs, the perinæum, nates, and testes, had suffered in the same way. The skin over the nates was greyish and dry—the other parts were vesicated. He was in a state of rigor, and suffered severe pain. Linsced oil had been applied immediately after the accident.

The whole of the burnt parts were covered with carded cotton, and he had an anodyne draught. This gave the usual relief, and next day he was cheerful, and made no reference to the burnt surface, until questioned; and even then, it was obvious that he had little or no uneasiness from it. In the evening he became slightly comatose, and four leeches were applied to the temples. On the 3d day, the coma had entirely disappeared. He had a purge of calomel and jalap, slept well, and on the 4th day seemed perfectly well; making no complaint of the burn, and taking his food with relish. In the evening the comatose symptoms returned, with occasional starting up in bed; agitation of head, and apparent inability to articulate. Five leeches were applied to the head; and on the 5th day, he spoke and seemed as well as before. He had two stools from another purgative. The head was shaved, and the purgative repeated. In the evening he became restless,

with frequent moving of the hands to the head. He was relieved after the medicine operated, but on the 6th day he had more fever. The leeches and purge were repeated, and cold cloths were applied to the head. On the 7th day, he had two stools, was lively, and seemed to have quite recovered from the head symptoms. On the 8th day, he continued free of complaint, but as he had had no stool from another powder, an enema was given, which operated well. On the 9th day, the cotton had become much soiled on the nates and thighs, and was, therefore, removed and re-applied. A thin slough had separated from nearly the whole surface, but the granulations underneath had a pale ash colour, and were unhealthy. The bowels were free, and the head affection had not returned. About 10, P.M. his breathing became slightly stertorous. This gradually increased in severity, and he died at 9, A. M.

The brain and its membranes were found to be unusually vascular. There was considerable effusion of serum under the arachnoid membrane, about two tea-spoonfuls in each lateral ventricle, and about two ounces at the base of the brain and around the cerebellum. The thoracic and abdominal viscera were healthy.

Notwithstanding these appearances, I cannot help inferring that the removal of the local applications accelerated this child's death, and that the chance of his recovery, small as that was, would have been greater, had there been no exposure of the injured surface.

The utility of cotton is most conspicuous in simply vesicated burns, where one, or at most two renewals of it are sufficient; and it is to these cases that I believe its application has generally been restricted. But I have used it in a great variety of cases: recent, and old; vesicated and sphacelated.

From the state of parts after a deep burn, the cotton generally requires removal about every six or eight days, until the sloughs have separated, and the discharge has been diminished. The complete comfort enjoyed during such long intervals should go far to recommend this practice; even if, in other respects, it had no advantage over that by a daily renewal of the dressings. But I am now quite satisfied that a persevering use of this remedy, even in the chronic state of burns, and in many other ulcerations, is in every respect preferable to the practice usually adopted.

VIII. A carter, 23 years of age, was brought to the Infirmary three days after having been severely scorched, by his clothes catching fire while he was asleep. The whole skin, extending from the sacrum upwards, to within two or three inches of the scapulæ, and transversely occupying the entire breadth of the

back, and a great part of the right side of the abdomen, was dry like leather, hard, and of a brownish colour. The skin around this slough was inflamed, and in some places vesicated. There were several vesications on the right thigh; and immediately below the knee, a portion of skin about three inches in breadth, encircling the leg, was dry and dark coloured. The skin on almost the whole of the left thigh, and surrounding the left elbow, was in a similar state of sphacelus, with the exception of small vesications here and there.

The parts were bathed with *ol. terebinthinæ*, and the whole afterwards covered with carded cotton and bandaged. He said he felt easier after the cotton was applied than at any time since the receipt of the injury. Portions of soiled cotton were removed on the 5th and 7th days after admission, but no part was exposed until the 8th day, when the left thigh was examined. A great part of the slough had here separated. The sore looked healthy, and he continued free of pain or constitutional disturbance. The cotton was re-applied.

On the 12th day the sloughs had altogether separated, except on the back, and the surface was healthy. On the 14th day, the cotton on the back being soiled, was removed. A portion of slough still adhered at one point, but the sore was level with the adjoining sound skin, many inches of which were of recent formation. He had slept well every night since his admission. On the 22d day, the remaining portion of deep slough had separated from the back, and the whole of the parts were skinning rapidly.

In sphacelated burns, after the first stage has passed, the chief obstacle to the cure is the excess of local action, and the consequent exuberant granulations. This difficulty occurred in the present case, and required a graduated application of pressure by sheet-lead and pads, together with the use of cotton, which had previously been impregnated with various astringent lotions, and then dried and carded. These applications were removed about once a-week, and at every examination there was found to be a gradual formation of new skin, which, instead of being hard, contracted, and elevated, was soft, smooth, and level. There are still, at the end of three months, several inches of open surface about the spine of the ilium and side of the abdomen, where the pressure is regulated with difficulty, but even here there is a progressive advancement, and the case may be looked upon as cured.

It was the general opinion of those who saw this man at admission, that he could not recover. I have never seen such a case recover under any other plan of treatment, and I doubt whether a similar case of cure can be produced. I am quite

satisfied at least, that no one can be pointed out in which the treatment was so easy, both for the surgeon and the patient; and where there was neither the loss of a single night's sleep, nor the occurrence of a single symptom requiring the prescription of more than a simple laxative medicine.

The excessive action set up to repair the injury after deep burns, especially in children, is the common cause of a protracted cure; and this is always increased by the frequent removal of the dressings. But in very old patients who have survived the primary constitutional irritation, this action is more moderate, and the process of cure is proportionably speedy. I add a single example of this kind.

IX. A woman, 82 years of age, was admitted 12 days after receiving a severe burn on the back, from her clothes taking fire. There was a large greyish slough on the left side of the back, extending from the ilium to the scapula, and a smaller portion near this of a similar appearance. These sloughs had separated at the margin, exposing healthy granulations. A smaller portion of the left arm was also superficially ulcerated, the slough having lately separated. She was feverish, had a foul tongue, and was weak, irritable, and restless from pain. Poultices had been used to the parts. The cotton was now applied and renewed when soiled, until the slough had altogether separated. The fever and irritation subsided, the granulations were left clean, but rather dark coloured, and there was no excess of action; but neither was there any formation of new skin. The cotton was continued, and she was allowed a little wine. At the next removal, new skin had been formed, and the sore was contracting, so that after six weeks, and about as many dressings, a firm covering took place with the cotton, which has not been removed for more than a fortnight, and she will probably require little further attention.

These cases are given nearly in the order of their occurrence, and with little or no selection. Many others might be added; but this is unnecessary.

Some care is necessary both in preparing and in applying the cotton. For this purpose it should be finely carded, and disposed in narrow fleeces, so thin as to be translucent; by which means it can be closely applied in successive layers, and is thus made to fill up and protect the most irregular surfaces. The burnt parts, if vesicated, are to be washed with tepid water, and the fluid evacuated by small punctures. Or if more deeply scorched, they may be bathed with a spirituous or turpentine lotion. The cotton is then applied, layer after layer, until the whole surface is not only covered, but protected at

every point, so that pressure and motion may give no uneasiness. On some parts, it will adhere without a bandage, especially when there is much discharge, but in general, a support of this kind is useful. Where the vesications have been broken and the skin is abraded, or where there is sphacelus, more or less suppuration always ensues, and in such cases the discharge may be so great as soon to soak through the cotton and become offensive, particularly in summer; so that it may be necessary to remove the soiled portions. This, however, should be done as sparingly as possible, taking care to avoid uncovering or disturbing the tender surface.

The utility of cotton in burns suggested the propriety of adopting the same remedy in erysipelatous, blistered, and all superficially ulcerated surfaces, from which we do not wish to keep up a discharge.

I have repeatedly tried it in such cases, and I have found it particularly useful in abrasions and excoriations from pressure, whether arising from tight bandaging or from lying too long in one position. Much time is thus saved in healing; and, what is of no small moment, much pain and irritation from repeated removals of the dressings, is avoided. He only who has suffered from such a cause can set a proper value on the benefits which are thus conferred.

X. A child, nine months old, had urgent symptoms of hydrocephalus after measles. These were subdued by leeching the head and giving calomel.

An attack of pectoral inflammation now took place, for which it was found necessary to blister the chest twice. The symptoms of inflammation were dispelled in this way, but the blistered surfaces became highly inflamed and sloughy, producing great irritation and fever. The pulse was above 160, the skin hot, and there was constant crying and restlessness. The livid appearance of the part was rather lessened by poultices, and the application of thick cream mixed with goulard; but there was no diminution of the fever, and I considered the child in the most imminent danger.

In this state the cotton was applied. The child slept well, which had not been the case for many nights. Next day the fever and irritation had remarkably diminished, and he was nearly convalescent. On the sixth day the cotton separated spontaneously, leaving the part perfectly sound.

It has long been a favourite practice in hospitals to treat the large chronic sores, resulting from burns with different powdery applications, such as prepared tutty, chalk, rhubarb, colomba, &c. When these prove useful, their action is almost entirely mechanical. They first absorb the discharge, and

then form a crust over the sore, by which the external air is, for the time at least, effectually excluded; and the irritation and consequently the pain subsides. Such cases as still retain the characters of simple, overacting ulcers, unless they are too often dressed and irritated, will heal well under this treatment. But if the ulcers are unhealthy, this will generally fail. The constitution is now in fault, and must be attended to, while the sores are best treated by astringent lotions, succeeded by straps and bandages, until the action has become healthy. It is, therefore, chiefly in the simple forms of ulceration after burns, that absorbent applications are proper; and for all such I am satisfied that the use of cotton-wool, either plain, or rendered stimulating, will generally be found still more effectual.

In these cases the cotton may readily be suited to the state of the sore, by boiling or soaking it in a strong solution of sulphate of copper, chloride of lime, or other astringent lotion, and afterwards drying and carding it as directed, for recent cases. The superabundant granulations will thus be reduced, and the discharge will form a sheath over the sore with the cotton, which may then generally be left upon it until it heals. The patent lint may also be used in the same way, and occasionally the application of sheet-lead or pads beneath the bandages becomes necessary.

But in some cases of deep injury of a limb, where the sloughs which must ensue would be very extensive, and would probably destroy the muscles and blood-vessels, cotton will be of little use, and poultices, followed by the ung. resinosum and straps, are generally required. Cases of this kind, however, may sometimes occur in which amputation of the member may be the most judicious practice, and may prevent a fatal termination, especially in otherwise unhealthy subjects. We shall thus avoid the danger of death from the sloughing and suppurating process, or from the exposure of such an extent of surface as must follow when the sloughs have come away.

Besides this, there is actually little advantage to result to the patient, even if he should survive without amputation; for in such cases, the cicatrix, when formed, must always be deep and extensive, and such as entirely to disable the limb.

XI. A young man was carried to the Gorbals Police Office in a state of extreme intoxication. Here he fell upon the fire, and seemed to have remained in contact with it for some time; for the whole of the inner surface of the right arm, from the axilla and shoulder down to the fore-arm, were very deeply burnt. The whole skin was converted into a hard leather-like and insensible surface. The eschar produced so

much pressure on the vessels from its hardness and contraction, that excessive swelling and tension of the fore-arm and hand took place. These were but little relieved by the free application of leeches and by bandaging.

On the ninth day, when the slough began to separate, some arterial hæmorrhage took place near the axilla, but no considerable artery was discovered. On the twelfth day, however, a very profuse hæmorrhage took place, from an aperture in the slough, about two inches above the elbow. This was restrained by pressure above the clavicle, and nearly the whole of the dead parts, including much muscle, being removed, and the point of hæmorrhage ascertained, a ligature was passed around the humeral artery, about half an inch above the aperture. Owing to the freedom of anastomosis at the elbow, no abatement whatever took place in the bleeding. Another ligature was therefore immediately applied below the bleeding point, by which the hæmorrhage was at once checked. Poultices were applied until the sloughs had all separated. The ligatures soon came away, there was no return of bleeding, and he seemed to be doing well under the calamine ointment and adhesive straps, with nourishing diet and wine. The discharge, however, was very profuse, he gradually lost ground, became hectic, and died.

I now think that amputation at the shoulder might have saved this patient's life, provided it had been done before the constitutional irritation and debility became excessive. The flexor muscles had been much destroyed, and even had a cure been effected, there must necessarily have remained a very useless state of the limb.

The removal of a limb may be proper even in more superficial burns, or in cases where there has been very extensive sloughing of the integuments from other causes.

But even if the tedious process, the pain and the deformity from the cure of burns by cicatrization, did not constitute a sufficient reason for preferring the use of cotton, there is still another which must not be overlooked, viz. the injury which an extensive cicatrix produces in the functions of the skin. Every surgeon has seen the deficient action and the œdema produced, for a time at least, by extensive burns and cicatrizations in the extremities; and most surgeons must have met with still more serious effusions from this cause.

XII. A young, and previously healthy collier was admitted into the Infirmary, with a burn, produced by an explosion of fire damp, a few hours before. Both his arms were occupied by very large cicatrizations from a severe burn he had formerly received in a similar way.

The integuments of the face, right arm from the wrist to the shoulder, a large portion of the back, and the left elbow were now severely scorched and vesicated. This case was treated with the linimentum aquæ calcis and poultices, followed by the unguentum lapidis calaminaris, and the other usual ointments.

As the ulcers cicatrized, for ulcers and prominent cicatrizations took place, as usual under such treatment, and after he had begun to sit up, the right arm became œdematous, and this œdema gradually extended over the whole body. It was lessened for a time by diuretics, but these medicines lost their efficacy, and notwithstanding the use of a variety of tonics, &c., he sunk at the end of the second month. Several pounds of serum were found in the thorax and abdomen, but no other disease was discovered.

This case, therefore, was not fatal from primary constitutional irritation, for this stage had already passed; nor from internal inflammation, for of this there was no sign either before or after death; nor from debility owing to profuse suppuration of the injured parts, for these had very nearly cicatrized. There can be little doubt that the dropsical effusions were the cause of death, and that these were the effect of the extensive injury done to the skin, by which its exhalant and absorbent functions had been permanently destroyed.

No refined or ingenious theory regarding the beneficial effects of cotton in this description of injury, appears to me to be necessary. It cannot be supposed that there is any specific or medicinal property belonging to this substance, which prevents the usual process of ulceration, and accelerates the formation of new skin. In opposition to such a notion it may be stated, that the patent, or Liverpool lint, seems to succeed nearly as well; and I believe that the French *charpie*, or the substance called wadding, might be used instead of cotton. The wadding and the cotton, from their softness and elasticity, are best adapted for recent cases; the patent lint and *charpie* are better fitted for granulating sores requiring pressure.

There appears to be a twofold effect from this kind of treatment. The primary effect arises from the exclusion of the air and the slow conducting power of cotton, by which the heat of the part is retained, whilst a soft and uniformly elastic protection from pressure is afforded.

The secondary effect depends entirely on the sheath or case formed by the cotton absorbing the effused serum or pus, and giving the best possible substitute for the lost cuticle. But in order that the full benefit may be derived from this substitute,

and to ensure an equable and continued support to the tender parts, until the new skin is formed, it is absolutely necessary that this new, or *cotton cuticle*, as it may be called, should not be removed, except under particular circumstances, until the real cuticle is sufficiently formed to bear exposure.

To the slow conducting power of cotton, then, and to the soft and elastic covering it affords to every part, I attribute entirely that speedy, as well as permanent relief from agonizing pain which I have never observed under other applications. And to the formation by this substance, of a proper substitute for the lost or injured cuticle, I attribute the rapid growth of new skin so generally observed; and the absence of those unhealthy granulations and cicatrices so troublesome under the usual applications.

But it is of little consequence, in my estimation, what theory is formed regarding the operation of this remedy. The effect is what I am chiefly desirous to bring before the profession; and although the foregoing cases have, in my own opinion, illustrated this sufficiently, I know it is difficult to convey a correct idea of the nature and extent of this injury in particular cases; and I trust, therefore, that the adoption, the limitation, or the total rejection of the practice by others, may rest only on their actual experience of its usefulness.

It seems scarcely necessary to add, that if much constitutional disturbance should be evinced after the cotton has been some time applied, whether this proceeds from previous ill health, or from the effects of the injury and the confinement, it may be necessary to give exit to the discharge, or even to remove the cotton altogether. We are then to be guided by the symptoms and appearances, whether to re-apply the same dressings, or first to restore a more healthy action in the constitution.* In the use of this, therefore, as of every other remedy, the judgment and discrimination of the practitioner are by no means to be dispensed with.

In conclusion, I would warn the surgeon to be on his guard, lest the discontent of his patient at having so little apparently done for him, the offensive smell from the discharge, or his own anxiety to observe, as he has been accustomed to do, the progress of cicatrization, should induce him to interfere with the process which nature is so busily and so beautifully accom-

* This I have once had occasion to do in a chronic case, but never yet in a recent one. This case had been treated by my colleague, Dr. M'Lachlan, during the hot weather of last summer; but the cotton was removed early, owing to the generation of maggots in the discharge, to prevent which, under similar circumstances, I would recommend the employment of cotton, previously soaked in the solution of the chloride of lime. By this means also the offensive smell will be corrected.

plishing. As long as the constitutional disturbance is on the decline, and the cotton applied has not become very much soiled, he may rest assured that all is going on well, and that his patient requires little other artificial aid than that which has already been afforded.

XI.—Report of Diseases among the Poor of Glasgow, during November and December 1827, and January 1828. By WILLIAM WEIR, one of the Surgeons to the City Poor.

DISEASES.	Total Cases.	Sent to Infr.	Deaths.	DISEASES.	Total Cases.	Sent to Infr.	Deaths.
Abortio - - - - -	3			Brought up, - - -	814	81	47
Abscess - - - - -	21			Hypertrophia - - -	1		1
Amenorrhœa - - - -	6			Hysteria - - - - -	35		
Amaurosis - - - - -	1			Hysteritis - - - -	1		
Anasarca - - - - -	21		4	Icterus - - - - -	2		
Aneurism of aorta - -	1		1	Larynx, ulceration of, -	1		1
Ascites - - - - -	13		2	Leucorrhœa - - - -	42		
Asthma - - - - -	26		1	Lepra - - - - -	1		
Bronchitis - - - - -	41	1	3	Mania - - - - -	2		
Bruise - - - - -	22	1		Menorrhagia - - - -	14		
Burn - - - - -	7	1		Nephritis - - - - -	1		
Calculus vesicæ - - -	1			Obstipatio - - - - -	7		
Cancrum oris - - - -	4		1	Ophthalmia - - - -	24	1	
Carbuncle - - - - -	1	1		Otitis - - - - -	7		
Cataract - - - - -	1			Paralysis - - - - -	10	1	1
Catarrhus - - - - -	29			Periostitis - - - -	1	1	
Cephalalgia - - - -	8			Pertussis - - - - -	17		1
Concussion - - - - -	1			Phthisis - - - - -	15		3
Cornea, opacity of, -	1			Pleuritis - - - - -	24	1	2
ulcer of, - - - -	2			Pneumonia - - - - -	55	1	5
Cynanche tonsillarlis ..	15			Psora - - - - -	39		
trachealis - - - -	4		4	Rheumatismus - - - -	36	2	
Debility - - - - -	16		1	Rubeola - - - - -	54		7
Diarrhœa - - - - -	41		1	Scrofula - - - - -	11		
Dropsy, general - - -	9	1	4	Spine, curvature of, -	1		
Dysenteria - - - - -	143	5	8	Sprain - - - - -	20		
Dyspepsia - - - - -	40			Stricture of urethra -	1		
Enteritis - - - - -	10		2	Syphilis - - - - -	8	1	
Epilepsia - - - - -	4			Tabes mesenterica - -	1		
Erysipelas - - - - -	19	1		Tic douloureux - - -	1		
Fever - - - - -	248	68	9	Tympanitis - - - - -	3		
Fistula - - - - -	4			Tinea capitis - - - -	3		
Fracture of humerus - -	1			Tumour - - - - -	8		
radius - - - - -	1			Tussis senilis - - - -	22		
cervix scapulae - -	2			Ulcer - - - - -	46	2	1
Hæmoptysis - - - - -	5			Urticaria - - - - -	6		
Hepatitis - - - - -	29	1	1	Variola - - - - -	11		1
Hernia - - - - -	5			Vermes - - - - -	37		
Hydrocephalus - - - -	5		4	Vertigo - - - - -	10		
Hydrops articuli - - -	2	1		Whitlow - - - - -	4		
Hydrothorax - - - - -	1		1	Wound - - - - -	4		
Carried up, - - - -	814	81	47	Total, - - - - -	1400	91	70

Total Number of Cases - - - - - 1400
 Sent to Infirmary - - - - - 91
 Number treated in their own houses - - - - - 1309
 Deaths 70, = 1 in 18.7.

Remarks.—During the winter months of 1827-8, the poor of this city appear to have been less afflicted with disease than usual. The weather for the most part was extremely moist, and the cold by no means severe. The thermometer was seldom below the freezing point; and on several days in January, the temperature approached nearer to what it is about the end of spring, than in the middle of winter. Provisions being low priced, and work pretty abundant, the poor were less exposed to the exciting causes of disease, viz. deficiency of food, clothing, and fuel. Hence the total number of sick has been less than it will usually be during the period comprehended in the above table.

There can be no doubt that the state of the atmosphere as to temperature, moisture, weight, &c., which in this climate is particularly variable, has at all times a very considerable effect in giving rise to, modifying, and increasing, most of the diseases to which the human body is subject; and this must have much more influence among the poor, who are constantly exposed to its effects, than among the wealthy, who have the means of preventing or neutralizing them. Some of the diseases which it is the fashion to ascribe to infectious matter emanating from the bodies of the sick, may more correctly be traced to certain hidden and mysterious changes in the atmosphere. Disease in general, and some diseases in particular, will always prevail more at one season of the year than at another; and we see certain epidemics invariably appear during the cold weather of winter, while others as constantly require the heat of the autumnal months for their propagation. These facts are more apparent, and can be better studied, among the diseased poor than among the richer and better situated classes of society.

From a particular account which I have kept of the sick in my district during the last ten years, it would appear that disease prevails among the poor most in winter, next in spring, next in autumn, and least of all in summer, which is just what might be *a priori* anticipated to take place in a manufacturing population, where the poor are always better situated in regard to external circumstances during the summer than during the winter months. It may be sometimes different with respect to particular diseases, but I find from the same documents, that in the common fever of the city—now very generally denominated typhus—the numbers attacked have been greatest in winter, next in autumn and spring, and least in summer; thus following nearly the same order in regard to prevalency as that of disease in general. This is on an average of the last ten years, and is of course confined to the sick poor in one

division of the city, under my own superintendence, comprehending probably one-seventh or one-eighth of the whole population. The number of cases in the different months, also, varies greatly; the degree of prevalency in them, on an average of the last ten years, being according to the following order: January, March, December, May, April, February, August, November, September, October, July, June, the three former being by far the most sickly, the last greatly below the average, and all the rest differing very little from each other.

As to the deaths, the actual mortality, or the numbers who die in each season, will of course correspond with the number of the sick, and will generally be greatest in those seasons when the sick are most numerous, and fewest when these are fewest; but the rate of mortality, or the proportion of deaths to the number ill in each particular quarter, will very often differ. Thus, in regard to the actual number of deaths, the most took place in winter, next in autumn, next in spring, and fewest in summer; but the rate of mortality was greatest in autumn, then winter, summer, and spring, in the order here set down.

Although the weather was in general mild during last winter, the range of the thermometer was sometimes very great, varying so much as ten or twelve degrees even in the course of a single day, thereby inducing acute *pectoral complaints*, which accordingly appear very numerous in the above list. Indeed, affections of the chest, if we include the cough, and asthma of old people, formed nearly one-eighth of the whole, while during the autumnal months the proportion was only one-seventeenth. The mortality, however, has been the same in both seasons—about one in seventeen. Besides these, the deaths from measles have been very numerous, and they also may be fairly set down as arising from inflammatory affections of the organs of respiration, which are always the principal seat of disease in such cases.

When the cold weather sets in we have always among the poor a considerable increase in the number of the sick, chiefly old people, with catarrh, chronic bronchitis, tussis senilis, and other pectoral complaints, which swell the list greatly. A number of these die off every winter, and the colder the weather the greater the mortality. The remainder are relieved by expectorants, laxatives, blisters, &c., and would be still farther benefited by a supply of warm clothing; and when the genial weather of spring and summer returns, they partially recover, remain pretty well until the next winter, when they again apply for assistance. From this cause, although the winter is certainly among the poor the most sickly season, the deaths are not in the same proportion.

Fever has prevailed to a considerable extent, but with less severity and rather fewer deaths than it will generally be found to exhibit during the winter months, among the poor treated in their own houses. As seen by the district surgeons, fever cannot justly be considered a very fatal disease. Compared with the number attacked, the deaths are fewer than what takes place in inflammation of the lungs, stomach, intestines, or perhaps in any of the phlegmasiæ. In the above list the fever cases form between one-fifth and one-sixth of the whole, and the deaths have been one in 20. This is a much smaller mortality than what takes place in our Fever Hospital and Infirmary, in which, during the autumnal months, according to the report in the last number of the *Journal*, one in $7\frac{1}{8}$ died in the former, and in the latter one in $8\frac{1}{2}$, while in Dr. M'Farlane's report of the cases treated in their own houses, it would appear that only one in 116 died. This last statement, however, does not exhibit the correct mortality, because the cases sent to the hospitals were not deducted from the whole number, as is done in the foregoing table; and, besides, there were two deaths which took place in my own district, unfortunately omitted, in the hurry of copying over the different reports. If these circumstances be taken into account, and supposing the Infirmary cases to bear the same proportion to the whole, as they have done during the winter, the mortality, instead of one in 116, will be three in 86, or one in $28\frac{2}{3}$, which approaches nearly to the usual average. This correction it was necessary to make, as the circumstance of one death only in 116 fever cases, would at once strike every medical reader as requiring some explanation.

To account for the deaths from fever being more numerous in our hospitals than among the poor in their own houses, it has been said that the worst cases are sent there, and that those treated by the district surgeons are the mildest. This I know has not been the case for some years, but rather the contrary: and I have been so impressed with the fact, that removing patients after the fever has advanced some days, and the low typhoid symptoms are present, is attended with bad consequences, that I seldom recommend any to the hospital but the mildest; and in this, I believe, I am joined by the majority of the town surgeons. Indeed, I have no hesitation in affirming, from what I have witnessed, that carrying fever patients, a distance of perhaps half a mile in a semi-erect position, is, in mild cases, invariably attended with an increase of the symptoms, and in bad cases, very generally followed by death. Hence, with all the disadvantages of foul air, scanty clothing, few cordials, and bad nursing, fever cases, after hav-

ing attained a certain degree of severity, will be found more likely to recover at home than in any hospital. Many, however, must continue to be sent there, but the effects of their removal, although impossible to be avoided, I certainly consider as one reason why the symptoms appear more severe, and the disease more fatal in the Infirmary, than in the habitations of the poor. Other causes no doubt exist, and these may probably be found in the mental agitation and distress which always more or less accompany the removal of the patient from his own house to the fever wards of an hospital. It is true that gestation has been recommended in fever by eminent physicians, and has been said to produce good effects. I only state the fact that it has produced the contrary in many cases in this city, during the last ten years.

Dysentery has still continued rather frequent, but chiefly old chronic cases, which had occurred in enfeebled constitutions during the autumnal months; although the disease in its acute form was also occasionally seen in November and December. The deaths have been more numerous, which generally takes place towards the decline of an epidemic, the chronic and incurable bearing a greater proportion to the acute and recent cases, than at the period when the disease is at its height. So much has been said regarding this epidemic, its causes and treatment, in the last number, that any thing more here might be deemed superfluous. I cannot help observing, however, that among the conflicting opinions as to the best mode of treating the complaint, I do think that the great utility of opiates has not been sufficiently insisted upon. As the disease appeared last autumn, opium in one form or another was certainly the *sine qua non* in the treatment. I have heard of no practitioner who did not use it freely and fully in every stage, although all seem very anxious to give the merit of the cure to some other medicine, as if opium could not cure as well as alleviate. One orders a scruple of calomel, with two grains of opium, morning and evening, relieves his patient, ascribes that relief to mercury, and praises large doses of calomel. Another salivates his patient with the blue pill, but at the same time gives laudanum, almost *ad libitum*; and he also lauds mercury. A third prescribes pills of sulphate of copper and opium, is very successful in his practice, and sets down the former as an infallible remedy. While a fourth bleeds and blisters, using at the same time laudanum enemata and opium suppositories; cures nine out of ten, and declares the disease an inflammatory complaint, requiring the most powerful antiphlogistic remedies for its cure. In the whole of these, opium appears to be the chief agent in the removal

of the disease. In very severe cases of this affection, where the patient is suffering the most excruciating pain, with bloody stools and severe tenesmus, while the pulse is not at all accelerated, and the heat of surface even below the natural standard, the surgeon, with the knowledge that he can to a certainty relieve his patient by means of opium, is surely not justified in delaying that relief by having recourse to bleeding, blistering, or mercury, which, although they may all be capable of curing the complaint, are at best remedies requiring a certain time to produce the effect, while an opiate enema acts instantaneously; and all who saw much of the disease last autumn, must know that immediate relief was absolutely necessary. I attended a very considerable number of cases during the late epidemic, and although I certainly used a variety of medicines, the most successful was opium in one form or another. I never saw a case where there was the slightest necessity for bleeding, and very few indeed with much pyrexia. The symptoms for the most part were rather of an opposite complexion.

Four cases of *cancrem oris* are reported, a disease which is not unfrequent among the children of the poor, and is a very fatal malady. I have seen it generally as a sequela of measles, hooping-cough, typhus fever, or some disease inducing great debility, and most frequently in patients of delicate constitutions, where the system is unable to rally for want of a sufficiency of cordials and nourishing food. It is seldom if ever met with among the children of the rich; and I at one time thought it more likely to happen where large quantities of calomel had been given for the cure of the previous disease. I believe it most frequently occurs in children under two years of age; and I have seen no instance of it above puberty. Dr. Macfarlane, in whose district all the cases took place, has given me some particulars of the one which proved fatal. The child was a feeble emaciated infant, sixteen months old, with a swollen belly, and troublesome diarrhoea, and had been ill four weeks previous to the 18th December, when medical advice was requested. Ulceration had commenced in the gum of the upper jaw, and gradually extended along the edge of the alveolar process, very soon involving the same parts of the lower jaw. The mucous membrane of the lips and cheeks in a few days assumed a dark red colour, followed by small grayish spots, which rapidly enlarged and spread along the whole inside of the mouth, and ultimately affected the tongue. There was copious salivation, and enlarged glands under the jaw. The incisors soon dropped out, and a portion of the alveolar process of the lower jaw exfoliated. The mucous membrane of the mouth sloughed off, and the left cheek became

swollen, hard, and of a pale shining appearance, soon terminating in mortification, while a foetid discharge took place from the nostrils. The mortification extended from the angle of the mouth to the edge of the masseter muscle. On the 3d January, the slough began to separate; and on the 7th, two-thirds of it were detached, leaving the cavity of the mouth exposed, the disease appearing in its most hideous form. The child died on the 9th. The treatment consisted of laxatives, wine, quina, and nourishing diet, internally; while diluted muriatic acid, tincture of myrrh, solution of the chloride of lime, and diluted nitric acid, were severally applied externally. The latter was also given internally, and is the medicine which will generally be found most effectual in this disease. Indeed, if early and regularly employed, and the complaint be not very far advanced, and the constitution have any remains of vigour at all, the nitric acid will very often succeed in effecting a cure.

In the above case the disease appeared during convalescence from measles.

The two cases marked *fracture of the cervix scapulæ* were interesting, from the comparative rarity of the accident, and from there being considerable difference of opinion regarding them. One occurred in the practice of Dr. Macfarlane.

J. H., aged 55, fell from the top to the bottom of a stair, a height of twelve feet, and injured his shoulder. Next day it was much swollen, discoloured, and acutely painful, but retained its natural shape, although the tumefaction prevented the bones from being distinctly felt. The arm admitted of considerable motion, the head of the humerus could not be felt in the axilla, and it was believed that no dislocation existed. On rotating the humerus, an obscure crepitus was perceived, but from the excessive swelling its exact situation could not be ascertained. Various local applications were made use of, and the arm was secured to the trunk for nearly three weeks before the swelling subsided. At this period a surgeon, employed by a friendly society to pay the man his aliment, pronounced the existence of dislocation, and Dr. Macfarlane was requested to meet him in consultation. The shoulder was now flattened, and a hollow existed below the acromion, which, however, could be made to disappear by pushing the humerus upwards. The head of the bone was rather lower in the axilla than natural, but it did not present the defined globular form which exists in complete dislocation. After careful examination and some discussion, the surgeon appeared satisfied that there was no luxation, but that the case was one of fracture,

either of the head of the humerus or of the cervix scapula. About a fortnight afterwards, his doubts concerning the nature of the disease returned, and a second consultation took place, when another surgeon of considerable experience was called in. He rather inclined to the opinion that a partial dislocation existed, and proposed extension in the usual way. Dr. Macfarlane objected to this, being satisfied that it would destroy the union which had taken place, and retard the cure. It was, however, adopted. After forcible extension for a few minutes, the bone appeared in its natural situation, and the shoulder had certainly regained its natural form. The weight of the arm, however, immediately brought down the shoulder, and the hollow under the acromion was again evident. A slight crepitus was now discovered in the situation of the coracoid process, and all were satisfied that the cervix scapula was fractured. There was an increase of swelling and pain for a few days, but now (16th Feb.) he is able to move his arm pretty freely, although the motion of the shoulder is still impaired, and he is not fit for any active employment.

This was a puzzling case, the exact seat of fracture being for some time doubtful. In Cooper's Lectures by Tyrrel, Sir Astley acknowledges the difficulty of diagnosis between fracture of the head of the humerus and neck of the scapula, and alludes to an ambiguous case, which he at last discovered to be of the former species, by elevating the arm so as to restore the form of the shoulder, thus carrying up the shaft of the bone, while the head was then felt detached in the axilla. It was the absence of this symptom, and the being able to rotate the head of the bone along with its shaft, which led to the opinion that in the above case the fracture was in the cervix scapulae, and not in the head of the humerus.

The other case was still more obscure, and took place in Dr. Buchanan's district, who remains doubtful as to the nature of the disease. The patient, a strong man, about 50 years of age, was knocked down about the middle of October last, by the shaft of a cart, the wheel of which passed over his shoulder. The humerus was supposed to be luxated, and was immediately reduced. About six weeks afterwards, the arm exhibited the following appearances, in which state it still remains:—There is a hollow immediately under the acromion, allowing the finger to be introduced between that process and the head of the humerus. On raising the arm, the hollow entirely disappears, and the shoulder resumes its natural appearance; but so soon as the arm is allowed to hang, the bone immediately falls down, and the hollow presents itself as before. On rotation,

a crepitating motion is produced, as if from stiffness of the joint. The mobility of the fore-arm and fingers is little affected, but the shoulder moves only through the medium of the elevated scapula—the motion of the joint being almost completely lost. For some time no pain has been experienced, except occasionally about the guard of the arm. Moxa, liniments, bandages, and many other applications, have been tried, but all to no purpose. Some of the gentlemen who examined this case believed that the scapula had been fractured; others, that the muscles around the joint had been lacerated, and probably the tendon of the supraspinatus ruptured, as in the case narrated by Sir Astley Cooper; a third party thought that the humerus had really been dislocated, and that palsy and atrophy of the muscles had taken place, probably by the violent displacement and subsequent reduction of the bone. Time may, perhaps, lead to the discovery of the real nature of the accident.

107, George Street, 1st April, 1828.

A N A L E C T A.

1. *Death of Dr. G. C. MONTEATH.*

DIED, at Glasgow, on the 25th January, George Cuninghame Monteath, M. D. in the 40th year of his age.

Dr. G. C. Monteath was at once an accomplished physician and an eminent surgeon. His mind, distinguished as it was, by clearness of method, minuteness of observation, and soundness of judgment, was particularly fitted for the investigations of the former. His power of distinguishing, (perhaps the power upon which success in the practice of medicine depends more than any other), added to his thorough knowledge of what others had discovered, and his readiness in applying what either his erudition or his experience supplied, made some regret that he did not devote himself to the business of a physician alone.

As a surgeon, however, his success was perhaps still more remarkable. It was not the success of chance. It was the result of patient application, at an early period of life, to that science, without which all attempts at eminence in this department must necessarily fail—we mean the science of anatomy. It was the result of close and emulous attention to the practice of the ablest surgeons

in the metropolis. It was attributable, in no small degree, to an accuracy in planning his operations, and a collectedness of mind at the time of operation, such that no accident could occur, which had not been preconsidered, or which could in the slightest measure discompose him. Every surgical operation which he undertook, had evidently been the subject of much previous thought. Every ordinary circumstance had been carefully investigated—many circumstances which a common mind would probably have overlooked, had been weighed with deep attention—and neither the honour of his art, nor the safety of his patient was at any time left to what might occur at the moment.

Dr. Monteath was particularly distinguished as an oculist, and was unquestionably the first individual in this city, who materially improved the treatment of the diseases of the eye. It was here that the qualities of mind to which we have already alluded, were of the greatest service to him—namely, his power of minute observation, and the art, in which he so highly excelled, of distinguishing cases which, though they might seem alike when viewed superficially, were, in fact, very different, and might require even opposite means of cure.

Dr. Monteath's attention to his patients was particularly deserving of approbation. It extended to the poorest as well as the richest; and allowed no circumstance to escape notice, which could tend, even in a remote degree, to alleviate suffering or secure recovery. Those who had no other means of judging of his superiority as a medical practitioner, must have been struck with this trait of his character, and acknowledged it as an excellence of no mean value. His manner was soothing, and his politeness fascinating. None who had ever employed him as a medical attendant, could see him approach, without feeling their distress already in part subdued, their fears allayed, and their hopes invigorated, by the presence of one in whose ample skill and unwearied pains, they could so implicitly confide.

The profession which Dr. Monteath was ordained for a time to adorn amongst us, is one of so much importance in society, that the removal of an individual, who, by universal consent, has proved himself eminently worthy of trust in that profession, must be regarded as a heavy public loss, over which, on several accounts, we are induced to mourn and to reflect. It were well that we could impress on the minds of the many who are entering, or are about to enter on the medical profession, what were the characteristic excellencies of our departed friend—how deep the feelings of respect and attachment which these excellencies called forth in those who knew him—and how great the amount of good which his superior talents and acquirements were able to effect, even in the comparatively short term of years which he has spent among us! This were indeed a task worthy to be fulfilled; but which our feeble hand dares not farther to attempt.—W. M.

2. *Case of Obstructed Respiration, from Abscess in the Fauces.* By
MR. CULVERWELL, of Islington.

A CHILD, three years old, had been attacked with fits, incident to children from disordered stomach and bowels, which were successfully treated by warm baths, purgatives, &c. To these succeeded enlargement of the whole chain of glands in the neck, which, on subsiding, ushered in the symptoms related in Dr. Sym's case.* Great difficulty of breathing, a noise resembling that of croup, more particularly when the child went to sleep, an agonizing sense of suffocation, and a copious secretion of frothy mucus. On examination, there were no particular indications of any tumour; the tonsils, uvula, and fauces, presenting but little appearance of inflammation. Leeches, blisters, emetics, &c. were employed, without alleviation. Deglutition became alarmingly impeded, breathing stertorous, the child gasping for breath, and appearing every moment likely to be suffocated. The suspicion of an abscess or tumour, became more confirmed. On attempting to pass the finger down the œsophagus, all ambiguity was at an end; a large and elastic tumour was perceptible to the touch, on a level with the epiglottis. A lancet was directed by the finger, and from two to three ounces of pus let out. The child did well.—*Lancet*, No. 238.

3. *Lithotomy.*

MR. CRICHTON of Dundee, and Mr. Liston, have each published a table, exhibiting their success as lithotomists. Out of 70 cases, Mr. C. lost 9; and Mr. L. out of 29, lost 2. Some of the deaths, however, cannot be ascribed to the operation. One of Mr. L.'s patients died apoplectic, 14 days after the operation; and in one of Mr. C.'s cases, the operation had been put off too long, from irresolution on the part of the parents, the patient being a child.

Mr. C. accompanies his table with remarks on the operation, suggested by a 36 years' experience. He insists on the lithotomist knowing the anatomy of the parts—on the incisions being few in number—and the opening from the skin to the cavity of the bladder, as direct and continuous as possible. He ridicules the calling of lithotomy a dissection, as if it at all resembled the division of parts, fibre by fibre, for the purpose of exhibiting structure, and gaining information. He regards the alterations that have from time to time taken place in the mode of dividing the prostate, and the claims of superiority for one mode or form of instrument over another, as having proved mischievous, by withdrawing attention from what is chiefly of importance, namely, intimate knowledge of the parts, and self-possession during the operation. He gives several extracts from modern surgical authors, exhibiting falseness in their conceptions regarding the mode of finding and laying hold of the stone with the forceps. They give directions as if the stone was to be

* Glasgow Medical Journal, No. I.

searched for in a distended bladder, or in an empty space ; whereas, observes Mr. C., when the bladder is laid open, the urine escapes, the bladder contracts round the stone, and the stone is found close to the opening. By not adverting to this, the forceps are at one time passed over the stone, carrying the bladder before their point ; they are opened and shut, and pushed this way and that way, and still nothing is found ; the stone all the while lying behind the blades. At another time the stone is pushed before the forceps, and a portion of the bladder contracting around the stone, like the finger of a glove, it cannot be laid hold of. The like may also possibly happen from the bladder being too much distended with urine, in consequence of the absurd practice sometimes adopted, of compressing the urethra for some hours before operating ; in which case, the bladder, when suddenly emptied, may collapse irregularly, and retain the stone, especially if it be a small one, betwixt its folds.

Mr. C. has never met with any hæmorrhage from this operation, which was not always readily commanded, either by securing the divided vessel by ligature, or by the application of cloths soaked in cold water to the scrotum.

Mr. C. is of opinion that we ought to attempt the healing of the wound by the first intention. It is well known that a great portion of the distress attendant on lithotomy arises from the dribbling of the urine through the wound. In a patient of good habit of body, when the incisions have been properly conducted, the urethra and prostate divided by one cut, without hacking and mangling, the stone not large and readily extracted, Mr. C. thinks the attempt might not unfrequently succeed, and the operation be thereby divested of much of its terror and accompanying distress. It is only of late years that Mr. C. has directed his attention to this part of the subject ; and he has already witnessed the wound in five instances, heal by the first intention, the urine passing off by the urethra, from the commencement. One was a child of 19 months, in whom the wound did not require a second dressing. Another of three years, was going about within eight days after the operation. A third was five years ; and the other two 70. The two old men were walking about the room within three or four days after the operation.

As Mr. C. has never declined to operate in any instance, however unpromising the circumstances may have appeared to himself or others, the result of his cases may be regarded as fully justifying his conclusions, that the lateral operation of lithotomy possesses in itself nothing intrinsically hazardous—that it is the safest and easiest method of relieving patients of stone—and that the circumstances contra-indicating its performance are greatly fewer than is generally imagined.—*Ed. Med. and Surg. Journ. No. 95.*

4. *On the Purity of Sulphate of Quina.* By Mr. R. PHILLIPS.

“ PURE sulphate of quina has the form of minute fibrous crystals, it is inodorous, and its taste is bitter. If certain vegetable products,

such as starch or sugar, be mechanically mixed with it, they may possibly be observed by merely inspecting the preparation with a glass.

“1st. If the sulphate of quina be mixed with a considerable proportion of foreign matter, it may probably be detected by dissolving the salt in question in about three hundred times its weight of water,—say one grain in about five fluid drams of boiling distilled water. On cooling, pure sulphate of quina will be deposited in feathery crystals in twenty-four hours, if there be no adulteration.

“2dly. As indirect, but as good collateral evidence, the taste of sulphate of quina of known good quality may be compared with that of another sample. Thus, when pure, a grain of sulphate of quina will render nearly a pound and a half of water, or 10,500 grains, sensibly bitter.

“3dly. The alkalies, either pure or their carbonates, if but slightly in excess, always occasion precipitation at ordinary temperatures in a solution of sulphate of quina containing only 1-1000th of its weight, or less than one grain in two fluid ounces of water.

“4thly. A solution of tannin occasions a very sensible precipitate in an aqueous solution of sulphate of quina, containing only 1-10,000th of its weight of the salt, provided there be no acid in excess. Kino is that form of tannin which best answers the purpose. It is however to be observed, that the salts of morphia, cinchonia, strychnia, &c. are similarly affected by tannin; but they are not likely to be mixed with sulphate of quina.

“5thly. Sulphate of quina suspected to contain sugar, gum, or other substances soluble in cold water, may be tried by digesting the same portion of the salt in small and successive portions of water to saturation. If the sulphate of quina be pure, and the solutions all properly saturated, they will have the same taste and specific gravity; and similar portions will yield, by evaporation, equal quantities of solid residuum.

“6thly. A repetition of the above process, substituting alcohol for water, answers for extracting resin and some other substances, because sulphate of quina is soluble in alcohol to only a limited extent.

“7thly. If a white substance insoluble in cold water be found in the sulphate of quina, heat the mixture to about 170° of Fahrenheit. This will render starch soluble, and its presence may be determined by the addition of an aqueous solution of iodine, which will immediately occasion a blue colour, and eventually a blue precipitate. The iodine should be added in very small quantity.

“8thly. Sulphate of quina has been adulterated with ammoniacal salts. These are rendered obvious by adding a little of the suspected salt to a solution of potash. If any ammoniacal salt be present, ammoniacal gas will be readily detected, either by the smell, or by holding over the mixture a piece of turmeric paper, or a bit of glass moistened with acetic acid.

“9thly. To ascertain whether sulphate of quina contains any

earthy salts, such as sulphate of magnesia or sulphate of lime ; burn a portion of it in a silver or platina crucible, or even in a clean tobacco pipe. Any earthy salt, or any matter indestructible by heat, will of course remain in the vessel.

“ 10thly. To ascertain that the sulphate of quina contains the proper quantity of sulphuric acid and quina, dissolve a little in pure muriatic or nitric acid, and add a solution of muriate or nitrate of barytes : 60 parts should give about 17.3 to 17.4 of sulphate of barytes ; or the method may be varied without the trouble of drying the precipitate. Dissolve 60 grains of sulphate of quina in water slightly acidulated with muriatic or nitric acid ; add a solution of 18 grains of nitrate of barytes, and separate the precipitated sulphate of barytes by filtering. If nitrate of barytes be now added to the clear solution, it should still occasion slight precipitation, for 60 of sulphate of quina contain 5.8 gr. of sulphuric acid, equivalent to 19.1 of nitrate of barytes.

“ This test is only to determine that there is no crystallized vegetable matter uncombined with sulphuric acid in the sulphate of quina ; the detection of earthy or alkaline sulphates has already been provided for.

“ 11thly. Sulphate of quina should lose not more than from 8 to 10 per cent. of water by being heated till deprived of its water of crystallization. Mr. Barry informs me that he once examined a sample which contained more than 40 per cent. of water in excess diffused through it.”—*Philosophical Magazine*, Feb. 1828.

5. Improved Female Catheter.

THE female catheter, in general use, has no other provision for preventing the flow of urine, as soon as its point enters the bladder, than the insertion of a plug attached to the stilette. This plug is hardly ever fitted with such accuracy as to prevent the escape of the urine from the end of the instrument before a vessel can be placed to receive it. To remedy this defect, Professor Montgomery of Dublin, proposes the adaptation of a stop-cock, by means of which the urine may be completely prevented from flowing, until we are prepared to receive it. As a substitute, also, for the ordinary vessels employed to receive the urine, which from their height and size, are particularly unfit to be applied under the extremity of the catheter, he attaches a fine bladder, such as that of a calf or sheep. The bladder lies in the palm of the hand, without in the least interfering with the management of the instrument with the fingers ; the catheter being introduced, the stop-cock is turned ; and the urine is discharged into the attached bladder, without further disturbance of the patient—without even the apprehension of exposure—and without experiencing what, under some circumstances, might be a matter of no small importance, the feeling of cold.—*Ed. Med. and Surg. Journ.* No. 95.

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[No. III.

- I. *Lectures on the Eye, delivered to the Students attending the Glasgow Eye Infirmary.* By WILLIAM MACKENZIE, Andersonian Professor of Anatomy and Surgery, and One of the Surgeons of the Eye Infirmary.

LECTURE I. *On Injuries of the Orbit.*

GENTLEMEN,—In the Course of Lectures on the Eye, which I have delivered annually during the last ten years, I have been obliged to confine myself to such general views, as might serve to introduce my hearers to the subject; but in the Lectures which I mean to deliver in this place, it is my intention to select for consideration those topics only which appear of the greatest practical interest, and to treat them somewhat minutely.

Supposing, then, that you are acquainted with the structure and contents of the orbit, with its relations to the surrounding cavities of the nostril, the frontal, maxillary, and sphenoid sinuses, and the cranium, and that you have derived your notions of these points from some more accurate source of information than a certain modern author, who gravely displaces the palate bone from the floor of the orbit, where anatomists had always previously found it, to the nasal side of that cavity, I purpose, in this and the next lecture, to review the chief diseases to which the orbit is liable. At our present meeting, we shall confine our attention to the *Injuries* of the Orbit.

Under this head, I may first of all mention, as injuries which I have seen, *Contusion* producing inflammation and caries of the bones forming the edge of the orbit, *Fracture* of these bones, and *Penetrating Wound* of the roof of the orbit. *Incised wounds*, laying open the orbit, must from their nature be rare; yet some interesting cases even of this sort are recorded. Many *Gunshot Wounds* of the orbit are related. Indeed, numerous examples of the perforation of every part of the face and head by balls, must present themselves after a battle, to the notice of military surgeons.

You will observe, that it is not my intention at present to speak of injuries of the parts contained within the orbit. This would be to run into a field much too wide to be considered in a single lecture. Yet it is impossible altogether to avoid noticing injuries of the contents of the orbit, while considering injuries of the orbit itself; or, while speaking of wounds penetrating the walls of the orbit, to pass over in silence the injuries which, in this way, the brain and other surrounding organs may sustain. Cases occur, indeed, in which it is doubtful, to the injury of what particular part, *without*, or *within*, or *beyond* the orbit, the consequences of an injury ought to be attributed. Amaurosis, for example, one of the chief consequences to be apprehended from wounds of the orbit, is sometimes owing to injury of the branches of the 5th pair without the orbit; in other cases, to injury of the optic or other nerves within the orbit, or of the eye itself; and in other cases to injury of the brain.

1. *Contusions, and Cuts upon the Edge of the Orbit*

May happen from a blow with the fist, with a stone, with a stick; from a fall on the sharp corner of a table, from a fall on the street; and from many similar accidents. It is only in scrofulous children, and in the malar bone, that I have seen the inflammation, arising from such accidents, run on into suppuration, and affect the periosteum, and even the substance of the bone. But of course, the two other bones, which assist in forming the circumference of the external aperture of the orbit, and especially the frontal, may be similarly injured, and give rise to a long-continued ailment.

After the abscess in such a case is opened, thin serous pus continues to be discharged for many weeks; but at length, if the texture of the bone is not affected, the matter diminishes in quantity, grows thick, and ceases entirely. If, on the other hand, caries has begun, the discharge continues; it sometimes becomes curdy; the opening turns fistulous; the skin round the opening is dragged towards the bone; the edges of the opening throw out fungous granulations; and the eyelid, partaking in the dragging of the skin, is more or less everted.

This is a state of matters which we have very little power of checking. Being a caries from an external cause, it may be regarded, indeed, as less dangerous than one arising from constitutional disorder; yet it must be more by improving the general health than by local means, that the bone is to be restored to a sound state. The youth of the subject leads to a favourable prognosis; the scrofulous diathesis is unfavourable.

In the inflammatory stage, before there is any suspicion of

matter being about to form, leeches ought to be liberally applied over the bruise. I am the more disposed to advise this, in all cases of bruise over the edge of the orbit, from having met with cases of this kind, which having been thought too lightly of, and therefore not treated with leeches, ran the course which I have described; but which, it is probable, might have been prevented from doing so, by the use of proper antiphlogistic means.

If an abscess forms, it is to be opened as far from the edge of the eyelid as can be conveniently done, in order to avoid as much as possible the eversion which is apt to follow.

If the probe, introduced to the bottom of the opening, comes into contact with exposed and diseased bone, an injection of a strong solution of lunar caustic may be employed, or the pencil of lunar caustic may be filed down to the proper degree of slenderness, and introduced along the opening, till it touches the diseased bone. Of this practice in caries, a very favourable account has been given by Dr. NICOL, in the 94th Number of the *Edinburgh Medical and Surgical Journal*.

Change of air, nourishing diet, attention to the bowels, and the use of tonics, are also to be recommended. The decoction of sarsaparilla is likely to be beneficial.

After such a case has recovered, the integuments are generally found to remain immovably attached to the periosteum, at the point where the fistulous opening existed.

From blows on the edge of the orbit, particularly its upper edge, we must be prepared to meet with much more serious consequences, than merely an affection of the bone or its periosteum. Effusion of blood into the cranium, and inflammation of the brain or its membranes may be excited by such an injury; and while our fears are perhaps confined to the state of the bone, or of the soft parts which invest it, changes may be proceeding within, which shall suddenly prove fatal.

PARE relates, that Henry II. king of France, at a tournament, was struck with a lance above the right eyebrow. The skin was torn across the forehead to the external angle of the left eye, and several small bits of the shivered lance stuck in the substance of that eye. There was no fracture. The injury proved mortal on the 11th day. On opening the head, PARE found a quantity of blood effused between the dura mater and pia mater, under the middle of the occipital bone; and the substance of the brain at that place changed in colour and consistence.*

Mr. DEASE was called to a woman, about 35 years of age, who

* *Cœuvres d'Ambrose Paré*; Liv. x. chap. 9.

had received a blow with a pewter quart, over the left eye, producing a wound about an inch and a half long, and laying bare the bone. He bled her, and bade her keep quiet; she had a cooling laxative, kept her bed, and was allowed nothing but gruel and the like. Every thing went on well till the 14th day, when she had a slight shivering, and became hot and restless. On the 15th, her face was flushed, and her pulse quick and small. Round the wound there was a puffy swelling, and it was filled up with a soft fungus, spread over with a cream-like matter. Mr. D. pronounced matter to be under the cranium, and proposed the trepan; but another surgeon, who was called in, thought it advisable to defer it to next day. Next day she was better, and said she did not shiver. The other surgeon thought he did well in desisting from the trepan, but Mr. D. was of a contrary opinion; for her pulse, though slower, was still quick. For two days she remained much in the same situation; but on the third, her left eyelid swelled, and she said that for two hours in the night, she had great pain and stiffness in the jaw. Next day, her neck was quite stiff. Her friends seemed unwilling to allow any operation; and Mr. D. knowing how little it would avail her, did not press them. Next day she was speechless, and died on the 20th day from the receipt of the injury. On dissection, the dura mater under the wound was found detached, and slightly spotted with matter, the anterior part of the left hemisphere of the brain in a state of suppuration, and some fluid matter lying on the anterior and left fossa cerebri.*

These are striking instances of the fatal effects which may follow a blow on the upper edge of the orbit. Consequences, however, not less serious have been known to result from injuries of a similar sort, received at the lower edge of the orbit.

PETIT relates, that an officer was wounded with a sword in the right lower eyelid, precisely where the infra-orbitary nerve makes its exit from its canal, to distribute itself on the cheek. The wound was small, and healed in four days. There was slight inflammation of the conjunctiva of the lower eyelid, which was dissipated in two days. On the second day after receiving the injury, the patient complained of cruel headach on the same side that was wounded. He also felt slight pain in the left arm, and could scarcely move this limb. The pain of the arm increased exceedingly, notwithstanding the use of every kind of sedative application that could be thought of, and repeated detraction of blood. The arm lost more and more the power of moving, and at

* Dease's Observations on Wounds of the Head; p. 107. London, 1776.

last became quite paralytic. Three months after the receipt of the injury, the patient died; and by that time, the left thigh had also begun to be palsied. His mind was quite entire to the last. He saw perfectly with both eyes. PETIT dissected, first of all, the place which had been wounded. It did not seem to him that the sword had injured the infra-orbitary nerve; and he found nothing in the situation of the injury, which could lead to any conclusion. Having opened the cranium, and divided the dura mater all round, he endeavoured to raise the brain from the basis of the cranium, but he found it adherent to the dura mater, exactly at that point of the orbit where the muscles of the eye take their origin. This adhesion had been the result of inflammation. PETIT separated the adhesion; but as this was doing, the pia mater gave way, and an opening took place into the brain, a little before and to the side of the optic nerve, through which there escaped a large quantity of thick pus, of a white greenish colour. He thought at first that this pus had been contained in the right ventricle; but having taken out the brain, he cautiously opened that cavity, and found it filled with limpid fluid. He then passed a probe into the opening, by which the pus had escaped, and having enlarged this opening with the scissors, he found an abscess three inches long, two broad, and at least two deep, situated in the substance of the brain, and which had destroyed the corpus striatum.*

Contusion of the temporal edge of the orbit has sometimes been followed by the growth of encysted† and other tumours, within the orbit. These, however, as well as inflammation of various parts contained within the orbit, excited by the same cause, will require separate consideration hereafter.

2. *Fractures of the Edge of the Orbit.*

The only instance which I recollect to have seen of this injury, was from a blow with a long piece of wood, which struck the lower edge of the orbit, and separated a fragment, which I concluded to be the anterior angle of the malar bone. The fractured piece moved at first easily under the finger, in different directions, but became united in the course of a few weeks. No bandage was applied; but cases may occur, in which the eyelids being previously closed, a small linen compress, and a roller round the head, might be judiciously

* *Nouveau Système du Cerveau*, par François Pourfour du Petit, contained in the *Œuvres diverses de Louis*, Tome ii. p. 41. Paris, 1788.

† Two cases of this kind are related by Dr. Schwarz, in *Gräfe and Walther's Journal der Chirurgie und Augen-Heilkunde*, vol. vii. pp. 227 and 235. Berlin, 1825.

employed, to press a fractured piece of the edge of the orbit into contact with the bone from which it had been separated, till the process of reunion was completed.

Fracture of the upper part of the edge of the orbit is apt to penetrate into the frontal sinus; and the consequence sometimes is, that air, passing from the sinus, and through the fracture, is introduced into the cellular membrane of the eyelids.

A lad of 16 years of age, as he was going along the street with a load, ran inadvertently against a person passing in the opposite direction; a scuffle ensued, in which he received a severe blow immediately over the right frontal sinus. About an hour after, having occasion to blow his nose, the eyelids and parts adjacent became immediately inflated, so as completely to close the eye; and he felt the air rush, he said, into those parts. On being admitted into Guy's Hospital, under the care of Mr. MORGAN, the eyelids were much distended, and so closely approximated, that they could not be separated by any voluntary effort of the patient; the eyebrow was also puffed up, and the cellular membrane between the ear and orbit was in the same state of emphysema. The parts were not at all painful on pressure; they yielded a crackling sensation to the touch, and were free from discoloration. The supposed seat of the fracture was at a small distance above the superciliary ridge, where a slight depression, but no crepitus, could be felt. The globe of the eye was perfectly natural. The treatment adopted was very simple. Two small incisions were made through the integuments, about the eighth of an inch behind the external angle of the frontal bone, which allowed the air to escape. The swelling subsided in 24 hours, leaving the eye and surrounding soft parts in a perfectly healthy condition.*

3. *Counter-fractures of the Orbit.*

Fractures of the orbit sometimes take place, we are told, by what the French have called *contrecoup*, in consequence of falls on the forehead, or even on the occiput. It is seldom, if ever, that such fractures are discovered till after death. Indeed, it is of comparatively little importance to know of their existence during life, as they do not admit of any particular treatment, and as our attention must be almost entirely directed to the concussion, and consequent inflammation of the brain, by which counter-fractures are invariably, or almost invariably, attended.

* Lancet; vol. x. p. 31. London, 1826.

4. *Penetrating Wounds of the Walls of the Orbit.*

The smallness of the eyeball, compared with the size of the cavity in which it is contained, and its firm resistance, compared with the looseness of the parts interposed between it and the orbit, explain at once how pointed bodies, thrust against the eye, are very apt to leave the eyeball uninjured, and to penetrate deep into the cavity of the orbit, or even passing through its walls, to enter one or other of the neighbouring cavities. The sides of the orbit which are turned towards the nostril and the cranium, from their situation and extreme thinness, are especially exposed to be thus injured. Perforation of the orbitary plate, in particular, is an accident to which the attention of the surgical student is early and forcibly drawn. The thinness and fragility of that plate, the readiness with which the brain may be reached through it, and the instantaneousness with which death has been known to follow such an injury, make an indelible impression on the mind of the young anatomist. Thus Mr. JOHN BELL, after attributing the thinness of the orbitary plate to "the continual rolling of the eye," with which that plate never comes into contact, and by which therefore it cannot be thinned, tells us, that "it is the aim of the fencer; and we have known in this country," adds he, "a young man killed by the push of a foil, which had lost its guard."*

Out of the many other cases of penetrating wound of the orbit which are on record, I shall select one or two to illustrate each of the different states in which we may find the patient, and each of the most remarkable effects which are apt to follow the injury. The weapon by which the wound was inflicted may have been immediately withdrawn, or the foreign body may still be sticking in the wound and is to be extracted, or it may have sunk so deep that it cannot be laid hold of. The effects of the injury may be slight and transient, or violent and immediately dangerous, or prolonged for a length of time.

It is evident, that a dagger, or other weapon, directed outwards, so as perhaps to break through the suture between the malar and sphenoid bones into the temporal fossa, or directed downwards, so as to shatter the floor of the orbit, and enter the maxillary sinus, will not be productive of the same amount of dangerous consequences, as when the instrument of injury

* Bell's Anatomy; vol. i. p. 49. London, 1811. The thinness of the orbitary plate, like the thinness of the middle of the os ilium, or the middle of the scapula, must be regarded as the natural constitution of the bone, and not at all as the effect of pressure of the brain, or rolling of the eye.

traverses the os planum of the ethmoid, or the orbitary plate of the frontal.

I shall illustrate gunshot wounds of the orbit separately; but I may here remark, that their effects correspond so far at least with those of the penetrating wounds of which I am now speaking, that from both, we may occasionally expect hæmorrhagy, extravasation of blood, blindness, strabismus, syncope, vomiting, coma, convulsions, palsy, death, as immediate effects; and as remote effects, fever, delirium, suppuration, caries, exfoliation of bone, and the like.

1. It ought to be impressed on your minds, that a weapon penetrating through the orbit, may strike deep into the brain, and yet so *small an external wound* be present, as shall be apt to excite little or no suspicion of danger.

RUYSCH briefly relates the case of a man, who was wounded in the orbit of the left eye, with the end of a stick, not particularly sharp. The injury appeared of little importance to the attendants; yet the patient died soon after receiving the wound. The magistrates appointed RUYSCH to examine the body, in order to discover the cause of the sudden death. Externally, he observed a slight degree of ecchymosis at the upper part of the eye; but on removing the calvarium, he found that the wound had penetrated to a considerable depth into the brain itself. This, he observes, may happen very easily, on account of the thinness of the upper part of the orbit, in many not thicker than writing paper, and so brittle as to be perforated by the finger. Wounds, therefore, of the orbit, he concludes, are not to be considered as a matter of no moment, especially if the instrument by which they are inflicted is not blunt, or if those who are wounded become sleepy, sick, feverish, giddy, or convulsed.*

PETER BOREL mentions a still more remarkable case, of a man-servant at Toulouse, who was wounded with a sword in the left orbit. Thinking that the wound had not penetrated deep, he merely covered it with a plaster; after which, he walked two leagues, and ate and drank heartily with his companions, exactly as if he had been well, being affected with no pain. Next morning, he was found dead. The skull was opened, when the wound was found to have penetrated to the cerebellum.†

These two cases are sufficient to show how cautiously our prognosis is to be delivered, when a wound appears to have penetrated to any depth towards the roof of the orbit.

* Ruyschii Observationum Centuria. Obs. 54. Amstelodami, 1691.

† Petri Borelli Historiarum et Observationum Centuria II. Obs. 19. Francofurti, 1676.

2. It is worthy of remark, that it is *not the orbitary plate of the frontal bone alone* which is apt to be fractured, when the weapon is directed towards the roof of the orbit; and that *we are sometimes enabled to judge of the degree of violence* employed by the hand which held the weapon, even *by the mere situation of the fracture*, which in fatal cases is detected on dissection.

The following case of fatal wound of the brain through the ethmoid bone, is quoted by BONETUS. A countryman, about 55 years of age, was asked by one who met him to step out of the way; but as he was carrying a heavy burden at the time, he could not do so, and therefore refused. The other, provoked at this, struck the countryman violently over the shoulders with a whip; and when the whip broke, thrust the sharp end of the broken stick of the whip in the countryman's face. Not apprehending any dangerous effects from the blows which he had received, the countryman, with his burden on his back, trudged along after his cart, which was loaded with wood, for nearly a quarter of a mile, till he arrived at the wood-market, when he instantly dropped down dead. SCHMID was appointed to examine the body. On examining the head externally, he found that the sharp end of the stick had penetrated at the internal canthus of the right eye. He endeavoured to ascertain with the probe whether the wound had reached the brain, but he could not, on account of the smallness and narrowness of the wound. Having opened the cranium, the brain and its membranes at first view appeared sound; but on raising the anterior part of the cerebrum, the nasal extremity of the falx was seen to be injured, and it was found that the wound had penetrated into the 3d ventricle, in which lay a considerable quantity of grumous blood.*

Some years ago,† I had an opportunity of witnessing the examination of the body of a man, who, the evening before, had almost instantaneously dropped down dead, in a scuffle on the street, after receiving a penetrating wound of the orbit, with the point of an umbrella. Considerable bleeding had taken place from the nose and mouth. The upper eyelid was swoln and livid, and the conjunctiva elevated by extravasated blood. Just over the tendon of the orbicularis palpebrarum, a penetrating wound easily admitted the little finger to the bottom of the orbit, between its nasal side and the eyeball. The end of the finger felt a fracture of the orbit. On opening the head, much dark fluid blood was found effused into the cavity of the tunica arachnoidea, and some between it and

* Joannis Schmidii Miscellanea; quoted by Bonetus in his Sepulchretum, Tom. iii. p. 380. Lugduni, 1700.

† 20th December, 1819.

the pia mater. The dura mater was seen to be penetrated by a lacerated wound, just under the edge of the boundary of the middle fossæ of the basis of the cranium, formed by the little wing of the sphenoid bone. The brain behind the wound of the dura mater was lacerated, and a small portion of it separated from the rest. On removing the dura mater, the fracture, which had been seen indeed immediately on lifting the brain, was displayed to view. The little wing of the sphenoid was separated by the fracture from the frontal bone, in the course of the sphenoidal suture. The fracture extended through the orbitary plate of the frontal for about half its length; but what was much more remarkable, the comparatively thick and strong portion of the sphenoid, which completes the posterior part of the roof of the orbit, was broken across at its inner extremity; proving, along with the state of the dura mater and brain, the determined force with which the instrument of death had been driven against the luckless victim of a drunkard's fury. I may mention, that the optic nerve and eyeball were entire, the cornea lively, and the humours and retina apparently uninjured.

3. I proceed to quote another case of perforating wound of the roof of the orbit, both confirming what is proven by the preceding cases, that at the first there may be nothing alarming, except the suspicious situation of the wound; exemplifying a symptom, which has ever been regarded as a fatal one in injuries of the brain, and which indeed generally proves so, namely, *convulsions*; and illustrating, in accidents of this kind, both the date and the effects of *suppuration*.

A soldier was brought to the hospital at Brest, at 11 o'clock in the evening, having been wounded with a pitchfork, at the middle of the left upper eyelid. The wound was oblique, about three lines in length, and appeared to have injured only the skin and orbicularis palpebrarum; there was very little blood discharged; the eyelid was put on the stretch, and the conjunctiva inflamed. The apparent simplicity of the wound, the goodness of the pulse, and the free exercise of all the functions, led to a favourable prognosis; the patient asserted that he experienced nothing particular at the moment of the injury; scarcely had he been stupified by it. Compresses, dipped in brandy and water, were applied over the wound. The patient rested during the night; next day, he was quite lively, walked about in the wards, complained only of slight pain in the region of the wound, and even ate with appetite. The same day, at 7 in the evening, he was seized with convulsions, which were supposed by his attendants to be epileptic. The day after, he was kept from food, and bled at the arm;

the convulsions returned, and he was bled at the foot. Vomiting, uneasiness, agitation, and delirium came on; the pulse became small and contracted; cold sweats succeeded, and the patient died at 2 o'clock next morning. On dissection, the wound was found already closed, and the eyelids œdematous. On cutting through the upper eyelid and orbicularis palpebrarum, a circumscribed collection of pus was found in the orbit, between its roof and the levator palpebræ superioris. This collection of pus communicated with the cranium, through the orbital plate of the frontal bone, which had been pierced through and through by one of the prongs of the fork. After removing the eyeball, the inferior wall of the orbit was found fractured and depressed almost completely into the maxillary sinus. This fracture was without fragments, and is compared by M. MASSOT, the relator of the case, to the depression produced on the surface of an egg, by pressing it inwards with the thumb. On removing the calvarium, the dura mater was seen to be penetrated over the hole made by the fork in the roof of the orbit. The dura mater appeared diseased at that place, the anterior fossæ of the basis of the cranium were covered with pus, the anterior lobes of the cerebrum were in a state of suppuration, and the rest of the brain healthy. M. MASSOT thinks it probable, that when the fork was pushed through the orbit into the cranium, the eyeball being fixed and violently pressed between the fork and the floor of the orbit, the thin plate of the superior maxillary bone could not resist this pressure, but sunk by the continued action of the fork upon the eyeball.*

4. I beg leave to observe, in the 4th place, that we may expect occasionally to meet with *paralytic affections*, in those who survive wounds penetrating the sides of the orbit.

A case of this kind is recorded by Mr. GEACH, a surgeon at Plymouth. He does not indeed say that the wound penetrated into the brain, but merely, that the instrument of injury struck against the inner side of the orbit; leaving it a matter of doubt, whether the paralytic symptoms which followed were attributable to effusion within the cranium, or to a still more direct injury of the brain.

A midshipman was wounded in a riot by a small-sword, which, entering at the external angle of the left eye, and passing quite through the eye, struck against the inner part of the orbit. He fell down instantaneously senseless, with loss of speech, and hemiplegia of the opposite side. Blood was immediately drawn. Next morning, he was found lying on his

* Journal de Médecine, Tome liii. p. 530. Quoted in the Dictionnaire des Sciences Médicales; Tome xxxvii. p. 558.

back, with the right eye widely opened, and the pupil (though in a light room) considerably dilated. This eye was incapable of discerning objects, never winking at the waving of the hand, or the close application of the finger, though sometimes it was convulsed. The left eye was extruded from its orbit, and enlarged to the size of a pullet's egg, though destitute of all its humours. His pulse beat at long intervals, with a lazy motion, and stopped upon gentle pressure: the body was not feverish, but preserved a natural heat, the paralytic side, arm, and thigh excepted, which were livid, cold, and rigid; the lancet was employed without exciting any sensation, and blisters lay on several days without raising any vesications; these benumbed parts were constantly bedewed with clammy sweat. He was devoid of anxiety, or inquietude; the powers of nature seemed to be almost suspended, and life to be carried on only through the large organs and vessels. The functions of the bowels were debilitated, lenient and strong purgatives producing no irritation in the stomach and intestines; and clysters, though repeatedly injected, were never repelled. The urine was in general emitted by drops only, but sometimes it would run off suddenly in a deluge; his hearing, though not quite lost, was considerably impaired; he lay lethargic, and dead almost to every thing, though by pulling the arms and shaking the body, by loud and frequent calling, and desiring him to extend his tongue, he would gape widely, and forgetting seemingly what had been said to him, keep his mouth wide open, when the tongue might be seen quivering and retracted. Five weeks elapsed in this state of insensibility; every thing he took was with voracity, but without relish or distinction. About this time a new symptom began to threaten; the jaw seemed to be moved with difficulty, and liquids only could be poured down; the hypochondria were hard and distended, and every effort to procure an intestinal discharge proved ineffectual; when very large eruptions of the miliary kind were suddenly diffused over the sound parts. From that critical moment, he perspired freely, and had an easy motion of the jaw; his urine was rendered in due quantity, and purgatives of the lenient kind easily operated; the hypochondria became soft; the discharge from the eye, which had hitherto been acrid, was now copious and laudable; the sound eye had its motion, he could see distinctly, and seemed in other respects sensible, when roused from his stupefaction. Soon after, he could bear to be moved from the bed to the chair without fatigue; the paralytic parts were rubbed with vinegar and mustard, and he took valerian and castoreum. A cataplasm of bread and milk had been daily applied to assuage the inflammation

and swelling of the eye. Though several large sloughs had been thrown off from it, and though the suppuration was in large quantity, yet the bulk of the parts did not diminish, nor the inflammation lessen, till an astringent fodus of red rose-leaves and port wine was applied, which so effectually braced up the relaxed parts, that the lids came to cover the deformity. A decoction of thyme and mustard was employed as a gargarism, to remove the suppression of voice. As soon as he began visibly to mend, he had sometimes loud and sudden bursts of laughter, and sometimes only a long-continued silent simpering, a species of convulsion not unlike that called by the Greek physicians, *κωνικός σπασμὸς*. When he attempted to walk, he had such gestures as accompany St. Vitus's dance, and seemed a perfect idiot, throwing eagerly forward one leg, and dragging the other trembling after. At the time when Mr. GEACH drew up his account of the case, the patient's appetite was naturally moderate, his sleep sound and refreshing, his hearing acute; he spoke, but drawled out his words rather indistinctly than articulately; the paralytic arm and thigh were again animated, and were receiving but slowly their flexibility and extension. He remembered nothing from the moment he received the injury, to the time he recovered and sat up; there had been a temporary privation of the intellectual faculties.*

The only comment which I think it necessary to make on this interesting case is, that the instantaneousness with which the patient fell on receiving the injury, looks very like the effect of a wound of the brain; while, on the other hand, the slowness of the pulse and the hemiplegia, are more the symptoms of pressure from effused blood. Even, however, on the supposition that the small-sword had not penetrated through the ethmoid bone into the brain, the case becomes only the more remarkable; as on that supposition, it would lead us to conclude, that a wound of the bones of the orbit, without perforation, might be attended by rupture of vessels within the cranium, and consequently with pressure on the brain, and paralysis.

5. In all the instances which I have hitherto quoted, the weapon, whatever it was, was instantly withdrawn on the injury being inflicted; but we must be prepared to meet with cases where *the foreign body*, which has been driven through the walls of the orbit, *still remains in the wound*.

In such cases, we instantly proceed to its removal; for there very soon follows such a degree of swelling, as might prevent

* Philosophical Transactions for 1763; vol. liii. p. 234.

us from accomplishing the extraction without great difficulty, if at all; and if the weapon was left, what could we expect, but destructive inflammation of the eyeball, of the orbit, of the surrounding parts, and among these, of the brain?

A labourer thrust a long lath, with great violence, into the inner canthus of the left eye of another labourer. It broke off quite short, so that a piece, nearly two inches and a half long, half an inch wide, and above a quarter of an inch thick, remained in his head, and was so deeply buried, that it could scarce be seen, or laid hold of. He rode with the piece of lath in him above a mile, to Barnet, where Mr. MORSE, a surgeon, extracted it with difficulty; it sticking so hard, that others had been baffled in attempting to remove it. The man continued dangerously ill for a long time; at last he recovered entirely, with the sight of the eye, and the use of its muscles; but even after he seemed well, upon leaning forwards, he felt great pain in his head.*

In the days when javelins and arrows formed principal weapons of war, many difficult cases of this sort must have occurred. ALBUCASIS shortly relates two, which had come under his care. In the one, the arrow entered at the nasal side of the orbit, and was extracted under the ear. The patient recovered, without any permanent injury of the eye. In the other case, a Jew was struck with a large unbarbed arrow from a Turkish bow, under the lower eyelid. It had sunk so deep, that ALBUCASIS could reach with difficulty the end of the iron, where it stuck upon the shaft. This patient also recovered without any serious effect.†

Very great force may sometimes be necessary for extracting a foreign body, which has been driven through the walls of the orbit. PARE's successful case is well known, when he was obliged, with a pair of farrier's pincers, to tear away from the Duke of Guise, the broken end of an English lance, which had entered above the right eye, and towards the root of the nose, and had penetrated as far as the space between the ear and the nape of the neck, tearing and destroying vessels and nerves in its course, as well as fracturing the bones.‡

PERCY had under his care a fencing-master, who, in an assault, received so furious a blow from a foil on the right eye, that the weapon penetrated nearly half a foot into the head, and broke short. The man fell down in a state of insensibility, and very soon the supervening swelling was so great as to conceal the foreign body. PERCY was obliged to open and

* Philosophical Transactions for 1748; vol. xlv. p. 520.

† Albucasis *Methodus Medendi*; Lib. ii. cap. xciv. p. 166. Basileæ, 1541.

‡ Paré, *Apologie et Voyages*; Voyage de Boulogne, 1545.

evacuate the contents of the eyeball, in order to lay hold of it. His forceps not being strong enough, he sent to a clock-maker in the neighbourhood, and borrowed from him a pair of screw-pincers, with which he laid hold as tightly as possible of the broken end of the foil, and thus succeeded in extracting it. The fencing-master died some weeks after, more from the consequences of intemperance than of the injury. Commenting on this case, PERCY recommends that we should rather remove the eyeball, than leave large foreign bodies in such a situation; and refers, in support of this practice, to a case related by BIDLOO, in which a splinter of wood was left to come away from the orbit by suppuration. The eye burst at last, after the most dreadful pain, and after the other eye had been threatened with destructive sympathetic inflammation.*

SABATIER notices a case of wound with a knife, through the upper eyelid, which also tore the neighbouring edge of the frontal bone. It was not, he says, till after four hours' work, that the surgeon succeeded, by means of a hand-vice, in tearing away the portion of the knife-blade, which remained in the orbit, on account of its projecting so little from the wound. The patient complained of severe pain, as if one had been tearing out his eye. No ill consequence followed; the cure was speedy, and without any affection of sight.†

6. It is important to observe, that mention is made by various surgical authors, of *the eyeball being dislocated*, or pushed out of its socket, by a foreign body thrust into the cavity, or traversing the sides of the orbit. Now, in such cases, it is necessary not only to remove the foreign body, but to reduce the eye. This has sometimes been done with complete restoration of vision.

By being dislocated, or pushed out of its socket, is to be understood, that the eyeball is extruded beyond the fibrous layer of the eyelids; that layer which is a continuation of the periosteum, and lies beneath the orbicularis palpebrarum. Of course, the optic nerve must be put very much on the stretch by such an accident, and the eyelids can no longer be made to close upon the protruded eyeball.

Mr. B. BELL relates a case, in which the eye was almost completely turned out of the socket, by a sharp-pointed piece of iron pushed in beneath it. The iron passed through a portion of the orbit, and remained very firmly fixed for the space of a quarter of an hour, during which period the patient suffered exquisite pain. He saw none with the dislocated eye; and

* Percy, Manuel du Chirurgien-d'Armee, p. 111. Paris, 1792.

† Sabatier de la Médecine Opératoire; Tome i. p. 409. Paris, 1822.

the protrusion being so great as to lead to the suspicion that the optic nerve was ruptured, Mr. BELL doubted whether it would answer any purpose to replace it. He found, however, on removing the wedge of iron, which being driven to the head, was done with difficulty, that the power of vision instantly returned, even before the eye was replaced. The eye was now easily reduced to its original situation, inflammation was guarded against, and the patient enjoyed perfect vision.*

7. I go on to remark, that the *foreign body*, by which a wound of the orbit has been inflicted, has in some cases been *left unremoved*, from the fact of its presence not having been suspected, or from the surgeon not having instituted a sufficiently strict examination of the wound with the probe; while, in other cases, it has been left in the orbit or in the cranium, from an impossibility of removing it with safety.

I do not recollect to have met, in the course of my reading, with any case of a foreign body thrust through the orbit by mere manual force, and left within the cranium. Numerous cases of gunshot wounds, however, in which the ball or other foreign body was left within the cranium, are recorded; and it is evident that the effects, so far as the mere presence of the foreign body is concerned, must be much the same, whether it has passed through the orbit into the brain by manual, or by gunshot force. Death, under such circumstances, is almost certain to be the result, either immediately or in the course of a few days; although some remarkable cases have happened, of extraneous bodies lying for years in the very brain itself, without producing death, or causing any apparent inconvenience.†

As to foreign bodies, which have merely passed through one or other of the sides of the orbit, and are left without removal, they give rise to more or less irritation, destroy the bones more or less extensively, take different routes for their escape, but in most instances appear to pass either through the maxillary sinus, or by the sphenomaxillary fissure into the fauces, and are discharged in very various spaces of time.

MARCHETTI tells us, that he had under his care a beggar, who, asking charity rather importunately one summer day from

* Bell's System of Surgery; vol. iv. p. 162. Edinburgh, 1801.—The author of the *Dictionnaire Ophthalmologique* has entirely misunderstood this case; he tells us, that the optic nerve was wounded (*très-blessé*), which forms no part of Mr. Bell's statement; and very improperly throws doubts upon that gentleman's veracity.

† See Quesnay's paper on Wounds of the Brain, in the Memoirs of the French Academy of Surgery.

a Paduan nobleman, this testy personage struck the beggar with the handle of his fan, in the inner angle of the eye, and with so much force, that a portion of the fan, three inches long, broke through the orbit, and sunk out of sight in the direction of the palate. When the man came to the hospital, MARCHETTI removed some small bits, which he found sticking in the angle of the eye, combated the inflammation, allowed the wound to close, and dismissed the patient as cured. In three months, he returned with a large swelling in the palate, which, when MARCHETTI cut into, his knife struck upon the handle of the fan, which he immediately extracted with a pair of forceps. The patient speedily recovered.*

Mr. WHITE relates the case of a person, to whom, as he sat in company, the small end of a tobacco-pipe was thrust through the middle of the lower eyelid. It passed between the globe of the eye and the inferior and external circumference of the orbit, and was forced through that portion of the os maxillare, which constitutes the lower and internal part of the orbit. The pipe was broken in the wound, and the part broken off, which, from the examination of the remainder, appeared to be above three inches, was quite out of sight or feeling, nor could the patient give any account of what had become of it. The eye was dislocated upwards, pressing the upper eyelid against the superior part of the orbit; the pupil pointed perpendicularly upwards, the depressor oculi was upon the full stretch, and the patient could see none with that eye. Mr. W. applied one thumb above and the other below the eye, and after a few attempts to reduce it, the eye suddenly slipped into its socket. The man instantly recovered perfect sight, and felt no other inconvenience than that of a constant smell of tobacco smoke in his nose for a long time after; for, as he informed Mr. W., the pipe had just been smoked in before the accident. About two years afterwards, he called upon Mr. W. to acquaint him, that he had that morning, in a fit of coughing, thrown out of his throat a piece of tobacco-pipe, measuring two inches, which was discharged with such violence, as to be thrown seven yards from the place where he stood. In about six weeks, he threw out another piece measuring an inch, in the same manner, and never afterwards felt the least inconvenience.†

In illustration of the great length of time which a foreign body may take in this way to escape, I may notice the following case, related in a letter to HORSTIUS. A boy of 14 years

Petri de Marchettis Observationum Sylloge. Obs. 23. Londini, 1729.

† Cases in Surgery, by Charles White; p. 131. London, 1770.

of age was struck by an arrow, while amusing himself in his play-ground. It stuck fast in the orbit, but the boy pulled it out, and threw it on the ground. A surgeon arrived, to whom the playfellows of the boy who was wounded showed the arrow, deprived of its iron point. With a probe the surgeon attempted to examine the wound; but on the boy fainting, he desisted, so that the iron point was left in the orbit. The external wound healed, and the boy recovered; the eye remained clear and moveable, but deprived of sight. This happened in the beginning of August, 1594, and nothing more was heard of the iron point, till October, 1624, when after an attack of fever and catarrh, with a great deal of sneezing, it descended into the left nostril, whence, taking the way of the fauces, it came into the mouth and was discharged. During the whole 30 years and three months that it had remained in the head, it had not been productive of any pain.*

5. *Incised Wounds of the Orbit.*

Sabre-wounds of the head have sometimes been attended by a *cleaving* of the orbit; and in some rare instances, the orbit has actually been laid open, either by a very deep cut, or by an entire separation of part of its parietes. The following cases are sufficient illustrations of this class of injuries of the orbit.

MARCHETTI shortly states the case of a German soldier, who was wounded in the forehead with a broad and heavy sword. The frontal bone and the brain were divided, down to the eyes, and the patient was immediately deprived of sight. In two months, he recovered from the wound, but continued blind, with the pupils clear.†

The following case shows the propriety of attempting union by the first intention, even when a piece of the osseous parietes of the orbit is completely separated by an incised wound.

M. RIBES was called to a young man who had received a wound with a cutting instrument, extending obliquely from the upper part of the left temporal fossa across the root of the nose, to the right fossa canina. This wound had divided the skin, the temporal branches of the 7th pair of nerves, the anterior auricular muscle, a part of the temporal muscle, orbicularis palpebrarum, and corrugator supercilii, the frontal branch of the ophthalmic nerve, and the supraciliary artery. These parts hanging over on the cheek, formed a flap, in which were also present a portion of the orbitary arch of the

* Gregorii Horstii Observationum, Lib. i. Operum, Tom. ii. p. 226. Norimbergæ, 1660.

† Petri de Marchettis Observationum Sylloge. Obs. 17. Londini, 1729.

frontal bone and its external angular process, so that a portion of the cavity of the cranium was laid open, as well as the cavity of the orbit, exposing to view the globe of the eye, and the motion of the brain. The nasal nerve and artery, the pyramidal muscles, and in a slight degree the bones of the nose, were divided; from the nose to the right fossa canina, only the skin was divided. The portion of brain laid bare appeared unhurt; the eye also seemed perfectly sound, none of its parts had been touched, except the levator palpebræ superioris, which, having been cut across in the middle, presented its anterior half in a state of relaxation, and dragged downwards and forwards by the flap which lay upon the cheek. The patient had neither experienced any concussion, nor become insensible; but when M. R. saw him, was in a state of considerable depression. A surgeon, who had been called before M. R. arrived, had already dressed the wound. Perhaps, in imitation of Magatus, who directs in such cases that a plate of gold or lead, drilled through with holes, be applied over the dura mater, and that the edges of the wound be simply brought together, without supporting them by sutures, this surgeon had placed between the lips of the wound a bit of linen spread with cerate on both sides, in order to give vent to the suppuration, which no doubt would have followed; he had then brought the flap into its place, and supported it by a roller. M. R. removed the piece of linen, and brought the edges of the wound exactly together, retaining them by strips of adhesive plaster. In six weeks, the patient was cured, without fever or suppuration. The eye, however, which had been exposed, became blind, and the upper eyelid remained motionless. Ten years afterwards, the eye still preserved its form and transparency, but had shrunk in size. M. R. is of opinion, that the blindness in this case arose from the sympathetic effect of the division of the branches of the 5th pair upon the retina. He regards the retina, not as a mere expansion of the optic nerve, but as a nervous membrane into which enter branches of the great sympathetic, and of the ciliary or iridal nerves, as well as the fibrils of the optic nerve; whence injuries of the great sympathetic or of the 5th pair, produce blindness, although in the first instance the optic nerve may not be at all affected.*

Although the separated piece of the orbit appears to have united in this case, it sometimes happens that only the soft parts unite, while the bones continue divided. Of this, we have an example in the case related by Dr. HENNEN, of an officer, who, at the battle of Waterloo, received a sabre-wound

* Mémoires de la Société Médicale d'Emulation; vol. vii. p. 86. Paris, 1811.

across the eyes, cutting obliquely inwards and downwards to such a depth, as to admit of a view of the pharynx. One eye was destroyed, and the hiatus was so great, that the upper jaw was obliged to be supported by morsels of cork put into the mouth, in such a way as to act as fulcra, but admitting the passage of liquid nourishment. After the wound was dressed on the field, the patient was sent to Brussels, where he fell into the hands of a Belgian barber, who stupidly cut out the ligatures, removed the straps by which the lower portion of the face was kept in position, and stuffed the parts with charpie. This was not removed for several days, after which the parts were again brought into apposition by straps and bandages, but with great pain, and consequent delirium. The patient recovered, granulations sprouting up at all points, and the soft parts uniting, but not the bones.*

6. *Gunshot Wounds of the Orbit*

Present much greater variety in their direction than any other wounds of this part. They also vary much in the depth, extent, and effects of the injury which they produce.

1. It may be observed, that the *exterior parts of the orbit*, and particularly the superciliary ridge, is often the seat of gunshot injuries.

Sometimes a ball will pass through the superciliary ridge; but generally when this is the case, the ball descends afterwards through the floor of the orbit into the maxillary sinus, or into the nostril, destroying the eyeball in its course. The frontal sinus, when much expanded, separates the two tables of the orbitary plate of the frontal, so as to form a cavity, in which musket balls have frequently been known to lodge. This is generally attended by depression of the inner table, so as to render necessary the operation of trepan. The surgeons of former days refrained from trepanning these sinuses, partly from fear of an incurable fistula following the operation, partly from the difficulty of sawing through two plates of bone placed obliquely in regard to one another, without wounding the dura mater; but the fear of a fistula is now laid aside, and the second difficulty is in some degree removed, by employing two trephines, a large one for the external, and a small one for the internal table. In this way, a depression may be raised, or a ball, fixed perhaps in the internal table, or in the roof of the orbit, may be removed.

2. The bones of the orbit, shattered by a ball, are still in some cases, *susceptible of union*, and ought not, therefore, to

* Hennen's Observations on some important points in Military Surgery; p. 370. Edinburgh, 1818.

be too hastily removed, although they are felt to be loose after an injury of this kind.

PONEYES had under his care a soldier, in whom a musket-ball had shattered the anterior part of the frontal sinuses, the upper part of the bones of the nose, and the right orbit towards the inner angle. He fell instantly on receiving the wound, vomited soon after, became insensible, and bled at the nose. PONEYES removed the portion of bone forming the frontal sinuses, leaving the bones of the nose and the injured portion of the orbit loose. The posterior part of the frontal sinuses was not fractured. Delirium came on with drowsiness; but after the patient was repeatedly bled, these symptoms ceased. The loose pieces of bone reunited, and the cure was completed in two months and a half.*

3. The *eyeball is more frequently burst* in gunshot wounds of the orbit, than in common penetrating wounds; but occasionally it escapes from being touched.

Dr. HENNEN mentions the case of a soldier, who was brought to him some weeks after being wounded, for the purpose of having a ball extracted, which gave him excessive pain, impeded his respiration, and obstructed his deglutition; it prevented his speaking distinctly, and kept up an irritation in his fauces, attended with constant flow of saliva, and a very frequent inclination to vomit. On examination, it was found to be lodged in the posterior part of the fauces, forming a tumour behind and nearly in contact with the velum pendulum. It had passed in at the internal canthus of the eye, fracturing the bone. Although blindness was the instant consequence, the globe of the eye was not destroyed; and the remaining cicatrix, and very inflamed state of the organ, were the only proofs that an extraneous body had passed near it.†

4. A very frequent consequence of gunshot wound of the orbit, is *exophthalmia*, or inflammatory disorganization of the eyeball, with protrusion.

When this is the case, either the humours should be evacuated by a free and deep incision, so as to allow the eyeball to shrink and become quiet; or if the eyeball has become solid from thickening of the coats, it ought to be extirpated. If such practice is not followed, the patient is generally doomed to suffer extreme pain for a length of time; and in some cases, the enlarged eyeball, by pressure, produces absorption of the roof of the orbit, and fatal inflammation of the dura mater and brain.

* Mémoires de l'Académie de Chirurgie. Tome vi. p. 202. 12mo. Paris, 1787.

† Hennen's Observations, &c. p. 361.

5. Balls *passing directly backwards* through the orbit, are generally fatal, from entering the brain; whereas, those which *enter the orbit obliquely*, though generally destructive of vision, either by striking the eyeball, or dividing the optic nerve, very frequently leave the brain untouched.

Dr. JOHN THOMSON, for example, mentions a case, in which the ball entered nearly in the middle between the frontal sinuses, passed across the left sinus, and seemed to lodge in the cavity of the orbit, producing blindness, with great swelling of the eye, and of the parts surrounding it. In another case, where the bullet had entered the face on the upper and left side of the nose, and passed out anterior to the right ear, the patient was affected with amaurosis of the right eye. The left eye was similarly affected, in a case where the ball had entered the right side of the nose, and had come out before the left ear. In one case, the ball had entered at the inner angle of the left eye, and passed out before the left ear. In another, the ball had entered above the inner angle of the right eye, and passed out of the right ear. In both cases, the eye of the side on which the ball had passed was destroyed. In one case, in which the ball had entered the right eye, and had passed out midway between the left eye and ear, the left eye was affected with amaurosis.*

6. Many instances are recorded of balls *passing through both orbits, from temple to temple.*

HEISTER relates a case of this sort. The person recovered; only he became blind the very moment he received the shot, and remained so ever after. The entrance and exit of the ball were exactly in the angle which the zygoma makes with the process of the malar bone going up to join the frontal, and of course the ball must have passed through the posterior part of each orbit, probably dividing both optic nerves, without wounding either the eyeball or the brain. The eyes appeared quite clear, and without inflammation, but fixed, and totally deprived of sight.†

Such a gunshot wound as this must be regarded as less dangerous than one in which the ball does not pass so directly across from one side of the head to the other; but either from being directed backwards in its course, enters the brain, or from its force being partially spent, lodges among the bones. Speaking of the wounded before Mons in 1709, HEISTER

* Thomson's Report of Observations in the Military Hospitals, after the Battle of Waterloo; p. 64. Edinburgh, 1816.

† Heister's Medical, Chirurgical, and Anatomical Cases and Observations, translated by Wirgman. Obs. lxxiv. p. 92. London, 1755.

states, that for the most part, those who had received a wound only in one temple, died either immediately or soon after.

Dr. THOMSON tells us, that he saw from eight to ten patients, after the battle of Waterloo, in whom musket-balls had passed through behind the eyes from temple to temple. In all of them, there was great swelling, pain, and tension of the head and face. He mentions, that a careless examination would have led one to suppose, that in these cases the balls had entered the cranium; and remarks, that cases of this kind are recorded, in which the blindness which followed is supposed to have been produced by the balls passing through the inferior part of the anterior lobes of the brain; but that most probably in such cases, the brain is untouched.

In one case observed by Dr. THOMSON, where the ball had passed through behind the eyes from temple to temple, one eye was destroyed by inflammation, and the other affected by amaurosis. In another case, where the ball had taken precisely the same direction, both eyes were affected with amaurosis, without any inflammation being produced. He remarks, that in some of the patients in whom amaurosis had followed, there was reason to believe, from the course which the balls had taken, that the optic nerves were divided; but that in a considerable proportion of those affected with amaurosis, it was obvious that the balls had not come into contact with these nerves. Various instances occurred, in which the bullet, penetrating through both eyeballs, had passed behind the bridge of the nose, and left it unbroken. In one of the cases, in which the ball had passed through below and behind the eyes, the patient was affected, at the end of some weeks, with painful spasms in the face, which, in their severity, and in their mode of attack, bore a striking resemblance to those of tic douloureux.*

7. A ball which has penetrated through one or other of the sides of the orbit, may in some cases be *detected and extracted*. In other cases, it cannot be extracted, nor its course ascertained; so that, if the individual survives, it must be *left to make its way out*, as in Dr. HENNEN'S case, by the fauces, or by some other route.

In those cases in which the ball is left, we must lay our account with caries, exfoliation of the bones, deep-seated formations of matter, sloughing of the mucous membranes, puffy swellings on the surface towards which the ball is approaching, and a very tedious recovery. Sinuses form, in such cases, before the ball makes its exit, and continue after it has escaped;

* Thomson's Report of Observations, &c. p. 65.

and to dry these up is generally attended with danger. We must wait till the parts within have become healthy, and then the sinuses will close of themselves.

One of the most remarkable cases of a ball which had penetrated through the orbit making its way out of the head, is that of Dr. FIELDING, who was shot at the battle of Newberry, in the time of the Civil Wars. The ball entered by the right orbit, and passed inwards. After 30 years' residence in the parts, and a variety of exfoliations from the wound, nose, and mouth, and the formation of several swellings about the jaw, it was at last cut out near the pomum Adami.*

8. Though it generally happens that gunshot wounds of the orbit, penetrating into the brain, prove immediately mortal, yet in some rare cases, the *ball, or other foreign body, has been known to remain within the cranium* for a length of time, without producing much disturbance.

The following case of a gun-breech penetrating the orbit and cranium, and remaining in the brain for two months previously to the death of the patient, occurred to Mr. WALDON of Great Torrington, Devon, and was communicated by Mr. ABERNETHY to the Medical Society of London. A lad, of 19 years of age, about 5 o'clock in the afternoon, as he was shooting at a wood-dove, was knocked down in consequence of the bursting of the gun. No person being with him at the time, the first effects of the injury could not possibly be ascertained; he was probably deprived of sensation and power by the accident, as he remained in the wood until the afternoon of the following day, comprising a space of 22 hours, during a very severe frost, and was found about 60 paces from the spot where the accident happened. On Mr. W.'s arrival, he found the patient in his perfect senses, notwithstanding that the os frontis and dura mater had been perforated a little on the right side and above the frontal sinus, and that a considerable quantity of the cerebrum was then upon his clothes, and exuding from the wound. From considering the nature of the injury, and the manner in which it had been inflicted, Mr. W. concluded that only the breech, as it is called, which screws into the back part of the barrel of the gun, could have effected the mischief. On the gun being found, his conclusion was verified, the barrel being perfect, and the breech gone, having carried with it the whole of the wooden part of the stock on a plane with itself. Notwithstanding he was at this time sensible, Mr. W. still doubted, from the force with which the breech must have been dislodged from the barrel, to overcome

* Philosophical Transactions, abridged by Jones. Vol. v. p. 203.

the resistance of the os frontis and dura mater, whether it might not be within the cavity of the cranium. In the most gentle manner possible, he introduced his finger as far as he judged it prudent, in order to detect whether any extraneous body was lodged there or not, but without effect. The patient having lost a considerable quantity of blood, as appeared on examining the spot where he lay the preceding night, Mr. W. judged it not expedient to open a vein, but contented himself, for that night, with wrapping the upper part of the face in a warm poultice, giving a laxative mixture, and ordering a strict antiphlogistic regimen. Next morning, Mr. W., to his inexpressible surprise, was informed that the lad had passed a good night, retained his senses, and was in good spirits. On removing the cataplasm, he found that an immense discharge of bloody fluid had exuded from the cavity of the cranium. This continued for several days to be thrown out, to the quantity of at least a pint every 24 hours, by the pulsatory motion of the arteries. On removing, at the first dressing, some part of the cataplasm from the internal canthus of the left eye, Mr. W. discovered by the probe, the head of one of the screw pins which fastens the lock to the stock, almost buried beneath the inflamed integuments, and which had penetrated the roof of the orbit upwards and backwards, through the cerebrum, towards the right parietal bone. Mr. W. extracted the nail with some difficulty. From the figure which he has given of it, it appears to have been the breech nail, an inch and three quarters long, a quarter of an inch thick, bent at an angle of about 135° . For some days, few or no unfavourable symptoms occurred, but a temporary loss of the power of associating ideas. The patient did not immediately recollect himself when awaking from sleep. The discharge continued profuse. On the morning of the 7th day from the time of the accident, Mr. W. was alarmed by the coming on of drowsiness, stertorous breathing, and sinking of the pulse from 70 to 55. Under these unfavourable circumstances, he ordered the fomentations to be renewed, and made large evacuations. Next morning, the patient was greatly better; and from this period, his convalescence became apparent daily. The tension of the integuments subsided, the pain of the head, hitherto violent and almost insupportable, left him, and laudable pus was evacuated through the opening in the frontal bone. In this state, he visited Mr. W.'s house, about the distance of 2 miles, every day, or every other day, sometimes on horseback, oftener on foot, to have his head dressed, without the least apparent fatigue or inconvenience. Precisely in this state he continued till the 20th of January, (the accident having happened on the

29th of November,) when he had a severe rigor, and complained of great pain in the back part of his head and muscles of the neck, with total loss of appetite, and inability to quit his bed. He had gone to a feast in the neighbourhood, where he had indulged more in eating and drinking than was proper. Previously to this, nature appeared to be regenerating the lost cerebrum, throwing out from its substance granulations of a faint bluish colour. The symptoms of inflammation and formation of pus within the cranium continued to increase till the 28th, when he was taken sick. During the act of vomiting, the attendants perceived on a sudden, a large projection on the right side of the frontal bone, underneath the sound integuments, and about 2 inches from the wound. On examination, Mr. W. thought he perceived a large portion of the frontal bone detached, and in a state of exfoliation; and considered a free division of the integuments, and a total removal of the substance, whatever it might be, as affording his patient the only chance of recovery. As he was dividing the integuments, which, extraordinary as it may appear, were scarcely altered from a natural state, he perceived the knife to grate on a yielding body, which appeared very unlike bone; and he found not a little difficulty in effecting the division from the receding of this hard body, which he had hitherto considered as detached bone. When the division was completed, he perceived a round black body, which he immediately recognized as the breech of the gun. It was laid hold of, first with a pair of forceps, and then with the fingers, and after some difficulty, extracted. It was three inches or more in length, and weighed three ounces and one drachm. It was placed in the brain, with one end pointing to the occipital, and the other to the frontal bone; and consequently must have extended nearly to the centre of the brain. The patient immediately became paralytic, and on the 3d day after the extraction, died, under a complete subsultus tendinum. Mr. W. could not obtain leave to examine the head after death.*

PETIT related in his lectures, the case of a soldier, who received a musket-shot in the inner angle of the eye. It seemed a very simple wound, and healed under the common hospital treatment. The man seeing himself cured, determined to leave the hospital, although advised by the surgeon to remain sometime longer. Scarce had he reached the door, when he was seized with rigors, obliged to return, and died in two days. On dissection, the ball was found lodged under

* *Memoirs of the Medical Society of London*; Vol. v. p. 407. London, 1799.

the sella turcica and optic foramina. An abscess was present in the brain.*

Dr. HENNEN mentions the case of a French soldier, wounded at Waterloo. The ball entered the right eye; the left, though not in the slightest degree injured to appearance, was completely blind. Dr. H. felt under the zygoma, and all along the neighbourhood of the wound, but in the puffy state of the parts could not detect the course of the ball. The patient himself was confident it had gone into his brain. He returned to France convalescent.†

9. In some cases of gunshot wound of the orbit, *recovery* has taken place *after partial loss of substance of the brain.*

The following is an interesting case of this sort. A young man, of 17 years of age, was wounded by a musket ball, which passing from below upwards, penetrated through the upper lip, the right nostril, and the roof of the orbit into the cranium, whence it escaped at the upper part of the frontal bone near to the sagittal suture, where it made a large wound of the integuments with loss of substance. Such a degree of swelling came on as made the head frightful. An incision was made over the wounded part of the orbit, whence at the first dressing there came out a portion of both substances of the brain, in bulk about the size of a small hen's-egg. The eye was exceedingly swollen, especially the upper eyelid, into which an incision was made, to give issue to the blood which was supposed to be there extravasated; but instead of blood, there came out a splinter of bone and a portion of both substances of the brain, nearly equal to a third of the portion which had formerly come away. The wounds were dressed lightly, and the patient was repeatedly bled. Some small portion of brain was again discharged. On the fourth day, the brain appeared to be in a state of suppuration; and on the fifth, the discharge became very considerable. From the time that he had been bled, the patient had continued pretty well till the eleventh day. Next day, he was more feeble. On the 13th day, the matter from the brain, which had been discharged both from the wound above and from that below, was in part retained, and the patient fell into a state of drowsiness and general depression. M. BAGIEU, who treated the case, having anew examined the wounds with minute attention, removed a large piece of loose bone from the upper part of the skull. The patient did not appear to be relieved by this, but became worse till the 15th day, when every one

* Garengot, *Traité des Operations de Chirurgie*; Tome iii. Obs. xx. p. 155. Paris, 1731.

† Hennen's *Observations*, &c. p. 361.

expected him to die. M. B. remarked, that, on pressing the skin where he had removed the piece of bone, pus oozed out, which made him suspect that there was an accumulation of matter at that place. Led by this idea, he removed the skin and some portions of dura mater, so as freely to re-establish the discharge. The pulse rose, the patient was next day able to speak, and afterwards the suppuration slowly subsided. About the 19th day, the fleshy parts began to granulate, and the wound on the upper part of the head was soon covered over. It was otherwise with that of the eyelid; for there supervened a considerable fungus, occasioned by the splinters separating from the neighbouring bone. In spite of cutting and burning this fungus, it was found necessary to wait patiently till all these splinters had come away; after which the excrescence was easily destroyed, the wound closed, and the patient recovered completely.*

10. It sometimes happens that a *part of the orbit is shot away*, and yet the individual recovers. Of this, I shall content myself with quoting a single illustration.

LARREY relates the case of a soldier, who was struck on the face with a cannon-ball, which took away almost the whole of the lower jaw and three-fourths of the upper, so that there remained a most frightful wound; the two upper maxillary bones, the bones of the nose, the ethmoid bone, and the right malar bone and zygoma, being broken to pieces; the soft parts corresponding to those osseous portions destroyed; the right eye burst; the tongue cut across; the fauces, and posterior apertures of the nostrils completely exposed, as well as one of the glenoid cavities of the temporal bone, and the muscles and vessels of the neck. Such was the state of the wound, that the comrades of this soldier had laid him into a corner of one of the French hospitals at Alexandria, in the belief that he was dead. Indeed, when LARREY first saw him, the pulse was scarcely to be felt, and the body cold and without the appearance of motion. As he had taken nothing for two days, LARREY's first care was to administer to him, by means of an œsophagus tube, some soup and a little wine. His strength was re-animated; he raised himself, and testified by signs the most lively gratitude. LARREY washed the wound, removed the foreign substances which adhered to it, cut away the soft parts which were in a state of disorganization, tied several vessels which he had opened in doing so, and brought the flaps together as much as possible by stitches. He also united by stitches the two portions into which the

* Mémoires de l'Académie de Chirurgie; Tome i. Partie ii. p. 127. 12mo. Paris, 1780.

tongue had been divided. He covered the whole excavation with a holed cloth dipped in warm wine, and then applied fine charpie, compresses, and a bandage. Every 3 hours, a little soup and some spoonfuls of wine were given with the gum-elastic tube and funnel. The dressings were frequently renewed, on account of the flow of saliva and other fluids. Suppuration was established, the sloughs separated, the edges of the enormous wound approached one another, the parts which were brought together adhered, 35 days after the injury the man was in a state to be moved, and ultimately cicatrization was completed. After having been supported during the first 15 days by means of the tube, he was able to take food with a spoon. He returned to France, and 11 years afterwards, when LARREY published his work, was alive, and in good health, in the *Hôtel des Invalides*. He could even speak so as to make himself understood, especially when the large opening into his face was covered with a silver mask.*

I have thus attempted, Gentlemen, to classify and illustrate the various *Injuries* to which the Orbit is liable, and the various effects which those *Injuries* are apt to produce.

There remain only two topics, on which I wish to say a few words.

1. It is evident from the cases which have passed in review before us, that although *in general, immediate death* is the consequence of an injury extending through the orbit to the brain, yet this is *not always* the case; but that in some cases life has been prolonged for several days, and that in other cases the patient has completely recovered.

It is probable, that it is not so much the absolute amount of injury to the brain, as the suddenness with which it is inflicted, which renders wounds of the brain through the orbit so generally fatal. We have examples of disorganization of very considerable portions of the brain proceeding slowly, for years, and yet life prolonged; while in perforation of the roof of the orbit, the smallest wound of the brain shall prove immediately mortal. Pathologists have generally attempted to explain the sudden and fatal effects of such wounds of the brain, by telling us that thereby the heart, or the organs of respiration, are instantly deprived of the nervous energy necessary for continuing their functions.† But how it hap-

* Larrey, *Mémoires de Chirurgie Militaire*; Tome ii. p. 140. Paris, 1812.

† Les playes du cerveau et des membranes sont mortelles le plus souvent, à cause que souventesfois s'en ensuit ablation de l'action des muscles du thorax, et des autres servants à la respiration: dont de nécessité la mort s'ensuit. Paré, Liv. x. Chap. 9.

pens that death takes place instantaneously in some cases of this sort, while others suffer so little from sudden injury of the brain, but linger, like Mr. WALDON'S patient with the gun-breech in his brain, we cannot tell, any more than we can explain how one man shall have a limb carried off, or shattered to pieces, by a cannon ball, without exhibiting the slightest symptoms of mental or corporeal agitation, while deadly paleness, violent vomiting, profuse perspiration, and universal tremor, will seize another on the receipt of a slight flesh wound. To say that all this depends on differences in nervous susceptibility, is only to repeat the fact in other words, not to explain it.

2. In regard to the *general treatment* of Injuries of the Orbit, it is very plain what that ought to be; namely, quiet and rest; a very spare diet; blood-letting, if the re-action demands it; laxatives; gentle diaphoretics; a little blue pill occasionally, if the liver becomes irregular in its action, as from confinement it is very apt to do; great cleanliness in regard to the injured parts; emollient cataplasms, and soft light dressings, frequently renewed.

We must beware of neglecting the use of blood-letting, and we must beware of employing this remedy too soon and too profusely. We must not omit to examine the injured parts frequently, in order, if there be any piece of exfoliated bone or foreign substance keeping up irritation, that it may be withdrawn; and, on the other hand, we must beware of too much poking and intermeddling, and of attempting prematurely to close up the issues, by which matter and foreign substances may have still to escape.

II. *Two Cases of Retroversio Uteri, with Remarks.* By WILLIAM WEIR, Member of the Faculty of Physicians and Surgeons, and One of the Surgeons to the City Poor.

RETROVERSION of the uterus generally takes place between the third and fourth months of utero-gestation. At this period, more particularly in such women as have the brim of the pelvis rather contracted and the general cavity wider than natural, the fundus is liable to fall backwards upon the rectum, the os uteri being turned upwards upon the symphysis pubis. Pregnancy, however, is not always necessary to the production of this affection, although I consider that the womb must be enlarged to a certain extent, either by pregnancy or by disease, before it can become retroverted. Desault relates an instance

produced by a polypus, and I have seen a case where there was chronic enlargement of the uterus, but no impregnation. Mr. C. Bell mentions a fatal case of obstruction of urine as having occurred in the practice of Mr. Cheyne, where, on examination of the body after death, the womb was found enlarged by disease, which had produced the same effect as if enlarged from pregnancy, for its fundus had fallen into the hollow of the sacrum, and had formed adhesions to the rectum, while the os uteri, pressing upon the urethra, caused the obstruction. Mr. Pearson, in his *Observations on Cancerous Complaints*, (p. 113,) mentions a case of retroversion, where the womb was enlarged from cancer. The patient, with the view of curing the cancerous affection, adhered most rigidly to a diet composed of liquids only, and in the course of four weeks, the severe pains were completely removed, the uterus reduced in size, and restored to its natural position. Dr. Burns mentions that retroversion may take place, "whenever the womb is enlarged to a certain degree by disease."

Retroversion may also occur a short time after delivery, when the uterus is of that size, which, if I may be allowed the expression, predisposes it for being thrown out of its true situation. A medical gentleman mentioned to me an instance of retroversion which had occurred two days after delivery, and most of the cases related by Dr. Merriman are of this description.

I have not been able to find on record any case of retroversion where the womb was of its natural size, but Dr. Denman, while discussing another part of the subject, speaks in a casual way of having seen instances of the disease in women who were not pregnant, and says, that in such the uterus "suffers no change." I cannot conceive, however, how the healthy and unimpregnated uterus can ever become retroverted, or if so, how it can produce the severe and distressing symptoms generally present in this affection.

At an early period of my practice, I had an opportunity of treating two cases of retroversion, both of which terminated favourably, and both women are still alive. The first was a married woman, aged 48, the mother of ten children, the youngest five years old. I was called to her on the 6th November, 1818. She had been complaining for about a fortnight, of occasional severe pains in the region of the bladder and uterus, stretching down the thighs, and coming on "in showers" similar to labour-pains, but often more severe. She could not pass urine but in drops, had a constant desire to go to stool, with much straining and distressing tenesmus, but very scanty evacuations. The distended urinary bladder was distinctly felt above the pubis. She had

not menstruated for three months, though previously regular, and she attributed her complaints to extreme costiveness, occasioned, as she thought, by improper diet, and producing excessive straining every time she went to stool. Three pounds of urine were drawn off by the catheter, with considerable relief. The instrument being in some degree obstructed, while passing into the bladder, led me to examine the vagina, when I discovered a hard tumour lying in the hollow of the sacrum, between the rectum and bladder. Firm pressure produced considerable pain, and great inclination to go to stool. The os uteri was discovered lying close upon the symphysis pubis, pressing upon the urethra. This tumour could also be felt by the finger introduced into the rectum. Fourteen ounces of blood were taken from the arm, a purgative enema exhibited, and fomentations ordered to the abdomen. In the evening the catheter could not be introduced, the injection had produced no effect, she had passed no urine, and next day, (7th,) she was greatly worse, with much thirst, foul tongue, and pulse 100. The instrument was now introduced with some difficulty, and the bladder emptied. Purgative enemata, with occasional doses of calomel and jalap, procured some evacuation from the bowels, and the urine was drawn off morning and evening. The warm bath, with leeches to the vulva, had the effect of relieving the severe tenesmus and distressing bearing-down efforts. On the 12th, while in the bath, she succeeded in passing a great quantity of urine, and some hours afterwards, she again made as much, after which, the symptoms became more manageable and gradually gave way. On the 16th, she had a copious and formed stool for the first time since her illness; the previous evacuations from the bowels having been all along either liquid, or of a flattened form, as if the sides of the intestine had been kept nearly in contact by the tumour. For some time after this, she was occasionally troubled with tenesmus, and had a more frequent desire than natural to pass urine, which symptoms were relieved by opiate injections. In a few weeks, she got quite well, and is at present in good health.

This woman never again menstruated. Particular circumstances prevented me ascertaining by examination, *per vaginam*, the actual state of the uterus, at the time the symptoms first gave way, and when I proposed examination to her at a subsequent period she would not consent, not perceiving any personal advantage to be derived from it. Even without this, I can see no other way of accounting for the disappearance of the symptoms than the supposition that the uterus had resumed its natural position. Mr. James Wilson and the

late Dr. Baird visited the case along with me, and agreed in the opinion that the uterus was retroverted. There was no pregnancy. I believe that the womb was enlarged from disease, and that, by means of the leeches, the warm bath, and the other remedies employed, this disease was removed, and the uterus reduced to its natural size and position.

It may be remarked, that the patient was about that time of life at which the menstrual discharge usually subsides. At this period, from certain changes which take place in the system, the uterus is liable to fall into a state of disease, and may become enlarged with or without acute inflammation. Dr. Merriman mentions that he has known more than one case of retroversion to take place about the time the catamenia usually cease, and that the uterus is apt at that time to enlarge and grow heavy. If this be admitted, that organ, in the case just related, would be in a state predisposed to become retroverted, on the occurrence of any exciting cause sufficient to begin the process of turning down the fundus; and here a very obvious one existed, in the extreme state of costiveness under which the patient laboured for some time, and the great exertion and straining necessary for the expulsion of the fæces. When retroversion has once begun, it is evident how the very symptoms produced tend to increase the displacement. The irritation and tenesmus first excited by the enlarged fundus pressing upon the gut, naturally produce much straining, which has the effect of bringing down the tumour more and more, while the bladder enlarging, in consequence of the retention of urine, caused by the pressure of the os uteri upon the urethra, assists very materially to lodge the uterus firmly in the hollow of the sacrum, and to cause the continuance of these symptoms, the very existence of which again contribute to increase the disease.

The other case I first visited on 31st October, 1820. The patient was a widow, aged 39, who had born several children, the youngest being five years old. She had the same symptoms as have been already detailed in the last case, but complained principally of the severe bearing-down efforts, with intense desire to go to stool, and to pass urine. She described these pains as being similar to what she used to have just at the termination of her labours. She had been ill for three weeks, and had taken strong purgatives, which operated violently.* Her urine had been dropping away involuntarily during the last three or four days. The belly was considerably swollen, and immediately above the pubes there was a firm tumour,

* I afterwards learned that this woman, supposing herself pregnant, had taken these medicines with the view of procuring abortion.

apparently independent of the general swelling, which was painful on pressure. The finger, introduced into the vagina and directed towards the os coccygis, was prevented going far, by a hard tumour lying in the hollow of the sacrum. On turning the finger upwards before the symphysis pubis, the same tumour was felt pressing upon the urethra, and preventing the free evacuation of the urine. It was also discoverable by the rectum, keeping the sides of that intestine together, so as nearly to obliterate its cavity. After the most careful examination, the os uteri could not be discovered in any direction. She had not menstruated for three months, but denied being pregnant. The catheter was introduced without much difficulty, and 2 lbs. of urine drawn off. An ounce of castor oil was given, and an anodyne draught ordered at bedtime. Next day, 1st November, there was no change for the better; the physic had operated, the stillicidium urinæ continued, and 4 lbs. of urine were drawn off by the catheter. The swelling of the abdomen appeared considerably less, but there was still a hard firm tumour immediately above the pubes; and although no more urine would flow, I did not consider the bladder completely emptied. There was now considerable œdema of the legs, thighs, and lower part of the belly. On the 2d November, the tumour was felt nearer the orifice of the vagina, and the distressing tenesmus and bearing-down efforts were more severe. The stillicidium continued, the belly was much swoln, and the bladder seemed full of urine. I experienced considerable difficulty in introducing the catheter. It went in a certain way easily, and about 2 lbs. of urine flowed through; but although it was quite evident that much remained in the bladder, no more could be obtained, and the tumour prevented the instrument passing any farther up. Elastic gum and silver catheters, male and female, of different sizes, were tried, the patient being placed in various positions, but they were stopped after being introduced about three inches.* A small quantity of laudanum was occasionally thrown into the rectum, which relieved the irritation; but a purgative injection which was this day prescribed, could not be got in. I had now the assistance of my friend Mr. Stirling in the

* Mr. Syme, who relates a case of Retroversion in the Medical Observations (vol. iv. p. 392), mentions, that the catheter was with difficulty introduced "an inch or two," and afterwards it seemed to pass rather farther up the urethra, but only drew off a spoonful or two of urine.

In Dr. Cheston's patient, he had to introduce a long male flexible catheter half its length, before any urine came away; and even after it was in three-fourths of its length, he did not draw off "such a quantity of urine as sensibly to diminish the swelling of the abdomen."—Medical Communications, vol. ii.

management of the case, and several other medical gentlemen occasionally visited her. On the 3d and 4th, she continued much in the same way; but the introduction of the catheter, which was attempted morning and evening, gradually became more difficult, less urine could be got away, and the abdomen increased in size almost every hour. On the 6th, the bladder was felt considerably above the umbilicus, and the fundus of the womb was getting lower in the pelvis. The catheter could still be introduced three inches, and to-day 2 lbs. of urine came away, but with little diminution in the size of the abdomen.

On the 8th, as well as several times previously, attempts were made to reach the mouth of the womb, and restore it to its natural position, but without effect; and the symptoms being now so extremely urgent, it was proposed by one of my medical friends to puncture the bladder above the pubes. By getting the bladder completely emptied, he considered there would be a much greater chance of succeeding in replacing the uterus; and as he believed the patient could not live long in her present situation, we were quite justified in having recourse to that operation. Some of the other gentlemen, however, being against this, and the patient refusing her consent, it was agreed to wait another day.

On the morning of the 9th November, the swelling of the abdomen was much increased, and she had paroxysms of severe pain almost constantly. The catheter brought away only four ounces of urine. The anasarca of the limbs and integuments of the abdomen, had increased greatly. There was considerable fever, with great thirst, furred tongue, and quick pulse. About mid-day, she was seized with the most severe pains, which continued almost without intermission, and were evidently those of labour. A consultation was called at five o'clock, P. M. On examining the state of the parts, we found the tumour now lying quite at the entrance into the vagina. The uterus appeared to be almost turned upside down; it lay impacted between the rectum and bladder, and it was with much difficulty that any examination could be made, owing to the strong action of the abdominal muscles forcing the contents of the pelvis downwards, and preventing the introduction of the fingers into the vagina. The pains were constantly present, and it appeared that the uterus was endeavouring to expel its contents, but which could not be accomplished while the os uteri remained in its unnatural situation. There was acute fixed pain in the back and at the bottom of the abdomen, immediately above the pubes. All the gentlemen were of opinion, that if some relief were not obtained, the patient could not survive long. There was now no hope that the

uterus could replace itself. The action tended all the other way. The strong muscular exertions of the patient forced the fundus still lower and lower. The question was, What could be done for her relief? Puncturing the bladder above the pubes was now considered quite inadmissible; inasmuch as merely emptying the bladder would have little effect in bringing down the mouth of the womb, and could not be expected to render any manual operations more easy, or more likely to be successful. One gentleman proposed that the fundus of the uterus should be punctured, which would allow the liquor amnii to escape, and reduce very materially the size of the tumour.* Previous to deciding upon this proposal, it was agreed to make a last attempt to reach the os uteri, more particularly as Mr. Stirling believed, that at a former examination, he had touched with his finger the posterior lip lying high up above the pubes. Accordingly, after much difficulty, and a great degree of force, and in opposition to the strong and powerful exertions of the patient, which all tended to prevent its admission, I succeeded in getting my hand into the vagina, forced up my finger above the pubes, and reached the mouth of the womb. An assistant at the same time got his hand into the rectum, and we had thus the perfect command of the patient. By steadily pushing upwards the fundus, and cautiously pulling the neck and mouth of the womb downwards, the tumour was gradually raised above the promontory of the sacrum, and the uterus reduced to its proper position. Considerable quantities of urine had been evacuated during the operation, and previous examinations. The labour continued; and now, after the uterus was freed from its firmly impacted state, the pains assisted to bring it still more perfectly into its natural situation.

It was ascertained that the membranes continued unbroken, the os uteri being little dilated; but after a few pains, the waters came away, and a leg and thigh were protruded. The abdomen had fallen greatly, was much softer, still tender when pressed upon, and the firm tumour, formerly observed immediately above the pubes, had now disappeared.† The os

* Dr. Hunter has recommended this in cases where no urine can be got away, and where the uterus cannot be replaced by the hand. *Medical Observations*, vol. iv. I do not know that the practice has been adopted, and I should think it never will.

† This hard swelling, felt from the first above the pubes, and which increased as the complaint increased, created a difference of opinion among the gentlemen who saw the case. Some of them could not satisfy themselves that there was any perceptible difference in this situation from any other part of the abdomen, and considered the whole swelling as caused by the distended bladder. It certainly felt harder, and more unyielding than the rest

uteri was not much dilated; and although the labour pains continued pretty strong for some time, they afterwards fell off, and the foetus made no progress for twenty-four hours. At this time she was seized with a severe rigor, and strong bearing-down efforts. A medical gentleman in the neighbourhood saw her immediately, and thought it proper to extract the foetus, the os uteri being then well dilated. The child was brought away mutilated; it was apparently about the fourth month, and somewhat putrid. The patient had passed urine naturally several times since the replacement of the uterus.

Next day, 11th November, she had severe fixed pain in the abdomen, with nausea, headach, and every symptom of abdominal inflammation. She lost 40 ounces of blood at three bleedings; other appropriate remedies were employed, and the disease was subdued. After this, she was for about four weeks troubled with uterine pains, and some discharge per vaginam, which were relieved by pretty large doses of tincture of opium. She had no fixed pain in the abdomen after the 13th, made urine naturally, and rapidly recovered strength, under the use of bark and tincture of steel. I saw her a few weeks ago in good health.

In respect to the practicability of replacing the uterus when retroverted, I may remark, that it was by no means so difficult as was anticipated. Much assistance no doubt was derived from there being two persons employed in the operation; but I should consider it quite practicable in general, for one individual to manage it. Some have recommended that both hands should be employed, the one being introduced into the vagina, and two or three fingers of the other into the rectum. But I believe one person will scarcely be able to use both hands, they interfere so much with one another.* Perhaps the best

of the belly, and was considered by the majority to be formed by the mouth and neck of the uterus. One of the gentlemen, however, was considerably puzzled about it; and although he believed it something different from the bladder, he would not give an opinion respecting its nature; but from some difference which he thought he discovered on the right side of the abdomen from the left, he was very doubtful whether the symptoms were not produced by a diseased ovarium, or by some tumour in the pelvis different from the uterus, and gave it as his opinion, that the symptoms, taken altogether, were not precisely those which he would expect in a case of retroversion. I do not mention this difference of opinion among my medical friends, from any belief that the diagnosis in retroversion is difficult, for I consider the disease will generally be well marked, and will very seldom be mistaken. My intention is to point out, that the circumstance of there being no os uteri found in any situation, tended in some degree to throw doubts on the nature of the case.

* Mr. Hooper found this in his cases. *Medical Observations and Inquiries*; vol. v. p. 104.

method would be to introduce the right hand into the vagina, with the back of it towards the rectum, and endeavour to raise the fundus, without interfering at all with the mouth of the womb, for fear of producing abortion. This plan I should be inclined to adopt, where the retroversion was only in a slight degree. But I am afraid cases will occur, where it will be absolutely necessary, even at any risk, to gain the additional force, which the introduction of one or two fingers into the os uteri will give the operator. He will then be able to pull the mouth of the womb gently downwards, while, at the same time, he can assist greatly by pushing the fundus upwards with the thumb of the same hand, or an assistant may raise the fundus through the rectum.

From the issue of this case, should another present itself, I would certainly be inclined, notwithstanding pretty high authority to the contrary, to attempt the replacement of the uterus at once, which, if successful, would put an end to all the symptoms, and in some instances prevent abortion. In the case just detailed, had the operation been done eight or ten days sooner, much suffering would have been saved the patient, and there was some considerable chance that the life of the foetus might have been preserved. I continued, however, to follow the practice most generally recommended, waiting for the symptoms to subside, content with doing my utmost to keep down the distension of the bladder, and to procure evacuations from the bowels, expecting that the case would go on something in the same way as my former one; and although I availed myself of the assistance of several medical friends, no very powerful efforts were made to reach the os uteri, until the disease had increased to an alarming height.

With respect to the urinary bladder, I do not believe that it was ever completely emptied during the whole treatment, notwithstanding the frequent introduction of the catheter.

I conceive that the os uteri was so far out of its natural situation, that it pressed, not upon the urethra, which is usually the case, but upon the bladder; that this viscus was thus divided into two cavities; a larger, situated high up in the abdomen, which had never been emptied, and a smaller, formed of that portion of the bladder situated between the place where the os uteri lay impacted and the urethra;* this last

* In Mr. Sycm's case, formerly quoted, the neck and mouth of the uterus were pressing upon *part of the bladder* above the pubes, as is evident from his quoting the case of Dr. Hunter, "where," says he, "the suppression (*retention?*) of urine depended upon a very different cause, viz. pressure upon *the urethra.*"—*Medical Observations*, vol. iv.

being always evacuated when the instrument was introduced, and no more being got away until it again accumulated by the urine from the upper cavity very slowly passing into the lower. This supposition would satisfactorily account for several circumstances attending the case; for the urine flowing for a certain time on the introduction of the catheter, and then stopping, although it was quite evident that the bladder contained a considerable quantity; for small portions being afterwards obtained by pressing upon the abdomen, assisted by the patient's exertions; for the impossibility of getting the catheter farther in than three inches; for the patient being occasionally able, by much straining, to throw forcibly a quantity of urine from the bladder; and lastly, it would account for only a few ounces being procured on the morning of the 9th, as the patient had immediately before evacuated all that was contained in the lower portion of the bladder.

Dr. Hunter first called the attention of the profession, about the middle of last century, to this peculiar misplacement of the uterus, and many cases have been published in the different periodical works since that time. It is a disease, however, not of very frequent occurrence, and there are few practitioners who can speak very decidedly regarding it from their own experience. This may account in some measure for the difference of opinion still existing among the profession, not only respecting the extent to which this organ may be thrown out of its situation, but also in regard to the most proper means for removing the distressing symptoms accompanying it. Some writers on midwifery speak of it as a very slight affection, seldom requiring much attention; although the cases on record show it to be very generally a most severe, and not unfrequently a fatal, malady.

Dr. Hunter thought that the chief circumstance attending retroversion was the misplacement of the uterus; that this took place first, and was the cause of the retention of urine, and of all the after symptoms. Dr. Denman took a different view of the subject, and maintained that the retention of the urine was the first symptom, and that the consequent enlargement of the bladder raised the neck and mouth of the womb, and caused the fundus to fall backwards; this unnatural position of the organ again acting as a cause to continue the retention, tenesmus, &c. The opposite opinions of these two eminent accoucheurs very naturally led to different methods of treating the complaint. The former recommended manual interference; the latter considered this as improper.

Dr. Denman, in his short account of retroversion attached

to his Midwifery, advises that no attempt should be made to replace the uterus, but that the urine should be drawn off regularly, and the bowels kept open, when that organ will soon resume its natural situation. In another place, however, he speaks of cases of this disease in women who were not pregnant, "and in whom," he says, "the uterus suffers no change," and in such he found the replacement always the most difficult; from which, I suppose, he must have frequently attempted to replace the womb. Dr. D. however, treats the disease very lightly, and does not seem to consider it as requiring much management from the surgeon, nor even much attention on the part of the patient. After the bladder has been emptied, which is to be done as often as necessary, he asserts that the patients will be able enough to go about their usual employment, and that in general nothing else requires to be done. He considers the distention of the bladder the only cause of alarm; but yet concludes by remarking, that the replacement of the womb by manual interference, "*though not absolutely necessary, is at all times an event to be wished.*"

Dr. Merriman is of the same opinion as Dr. Denman, and recommends that no manual attempt be made to replace the womb. All that he considers necessary, is to introduce the catheter, and leave the rest to nature. He does not see much objection, however, to cautious attempts with the hand, provided no great force is used.*

* Dr. Burns also follows Dr. Denman, in treating the disease as a very slight affection. He recommends emptying the bladder morning and evening, detracting blood if necessary; and says, that "we generally find the uterus resumes its situation perhaps in 48 hours."

Dr. Hunter, on the contrary, was in the habit of attempting to replace the uterus by the hand, and very often succeeded. In one remarkable case, however, under the care of Mr. Wall, after the urine was drawn off, their utmost efforts failed to replace the womb. The patient died, and on inspection, the uterus was so impacted in the pelvis, that it could not be got out, until the symphysis pubis was divided.† It will in general, however, be easily accomplished, when attempted immediately on the occurrence of the disease; and although it has been asserted that forcible attempts will be very apt to produce abortion, or even worse consequences, I am not aware of any case on record where bad effects resulted, and were fairly attributable to the manual efforts. Abortion has no doubt occurred, but this was the consequence of the disease,

* See Merriman's *Treatise on Retroversio Uteri.*

† *Medical Observations and Inquiries*; vol. iv. p. 400.

or was considered as absolutely necessary to effect the reduction of the uterus. Violent and unnecessary attempts are certainly not justifiable; but if the retroversion be complete, and dangerous symptoms be present, the uterus must be replaced at every risk. Our efforts must be in proportion to the difficulty to be overcome. Dr. Hunter, in the case just alluded to, used very violent efforts, and even abortion did not take place. Mr. Syme also used strong and violent measures.* Dr. Swan, Dr. Evans, Mr. Hooper, and many others, have reduced the uterus by the hand with ease, and all recommend that the practice should be adopted, immediately after emptying the bladder and rectum. M. Baudelocque rapidly reduced the womb to its proper situation, in a case where the fundus protruded at the os externum.† Dr. Ross also reduced the uterus.‡ Even Dr. Denman, who is at the head of the advocates for non-interference, says, “that the frequent introduction of the catheter, which is necessary when the uterus remains retroverted, is *of itself* a sufficient reason to attempt replacing the womb.” Dr. Hunter also, in his excellent lecture upon this subject, says, “I have been told that the retroverted uterus would of itself recover its natural situation, if, by the constant and proper use of the catheter, the bladder were but kept moderately empty. In many perhaps it might be so. And yet I think, when it can be done with ease (and in most instances it may,) it will be better to put an end at once to pain and danger by replacing the uterus. Practitioners know both how painful and how dangerous the situation of a patient is, whose urine cannot pass but through the catheter; and when it is sometimes so very difficult to insert the catheter, that even expert operators fail.” He then mentions that two women lost their lives at the London Hospital from retroversion; and concludes—“When we can easily and at once remove her pain, and put her into a state of security, can it be advisable to be passing the catheter for days and weeks together, till the uterus recovers itself, even if we could be sure that this would happen?” ||

Cases of retroversion, however, have occurred, where the uterus could not be moved. I have already alluded to one, in which, after death, the bones of the pelvis had to be separated, before the uterus could be freed from its unnatural situation. The same took place in a patient of Dr. Perfect (Perfect's Cases in Midwifery, vol. i. p. 394); and in a very singular case related by Dr. White of Paisley, (Medical

* Medical Observations and Inquiries; vol. iv. p. 388.

L'Art des Accouchemens, § 251. † Annals of Med. vol. iv. p. 284.

Medical Observations and Inquiries; vol. v. p. 392.

Communications, vol. xx.) many attempts were made by himself, and other medical gentlemen, to replace the womb, but without effect. Here, however, the uterus was enlarged from disease, and there was moreover an enlarged ovary, which tended to prevent the uterus returning to its natural position. The case ended well, after the patient had been for a long time in great danger; the ovarium suppurating and bursting into the rectum. It was supposed at first, that this woman was pregnant, and it being agreed, in consultation with Dr. Hamilton of Glasgow, and others, that abortion should be brought on, a probe was introduced repeatedly into the uterus, with the view of rupturing the membranes, but there being really no pregnancy present, no liquor amnii came away. Dr. W., in theorizing on the case, supposes that pregnancy had actually taken place, that the foetus had been retained in the ovarium, which became enlarged, and retroverted the uterus, previously somewhat increased in size from sympathy. The practice adopted in this case, of endeavouring to produce abortion in the usual way in which it is attempted under other circumstances, I have not observed suggested in any publication on retroversion. It would certainly be much more warrantable than puncturing the fundus of the uterus, which has been recommended; although it is probable, that wherever the os uteri is capable of being felt by the finger, it will be unnecessary, from the reduction of the uterus being practicable by the hand.

The advocates for non-interference have asserted that the catheter can in general be easily introduced, and the distention of the bladder, which is the *cause* of the retroversion being thus removed, all chance of danger is obviated; and one author mentions, that no case will ever occur where the urine cannot be drawn off. Now, the cases already referred to clearly show, that in general there will be more or less difficulty in introducing the catheter, and there are some on record where it was found impossible. In Dr. Cheston's (*Medical Communications*, vol. ii. p. 96), Mr. Lynn's (*Medical Observations and Inquiries*, vol. iv.), Dr. Squire's (*Medical Review for 1801*), M. Baudelocque's (*L'Art*, Sect. 253), Dœverin's case (*Merriman on Retroversion*, p. 12), Mr. Combe's (*Medical Comment*. vol. v.), and Dr. Perfect's* (*Cases*, vol. i. p. 394),

* In this case, the retroversion was so complete, that a clyster which was ordered to be given, could not be thrown up, and it was with much difficulty that the pipe could be introduced at all. The catheter, after many trials, could not be got in; and "although it sometimes in part gained admission, no water was drawn off." In Mr. Lynn's case also, "several attempts were made to pass the different kinds of catheters; but it was

the urine could not be drawn off. In the first, the bladder was punctured above the pubes, and in four the bladder burst.

As to distention of the bladder being the first cause of retroversion in most cases, I am still inclined to hesitate, notwithstanding Dr. Denman's positive assertion, "that it no longer rests upon the foundation of opinion or conjecture," and that "there does not remain a doubt concerning it." When retroversion does take place, enlargement of the bladder may certainly tend to increase the disease, and will probably prevent our efforts for its removal being successful; but the opinion of Dr. Hunter that some degree of misplacement first occurs, and that this mal-position then causes the retention, I consider the most correct. The bad effects attributed to distention of the bladder in retroversion, appear to me to arise not so much from the mere enlargement of that viscus, as from the straining which takes place on the frequent and ineffectual attempts to pass urine. In women of a spare habit, where the pelvis is capacious below, the uterus, in the early months of pregnancy, will occupy principally the lower part, and thus, by pressing slightly on the urethra and neck of the bladder, will give rise to some degree of difficulty, and frequent desire to pass urine, which straining will have a tendency to turn the fundus uteri downwards, and raise the cervix; complete retention will thus be produced, and then, but not before, will the bladder begin to act upon the tumour, and increase the complaint. I believe there are cases related, where the urine was drawn off regularly for several weeks, and the distention of the bladder thus removed, and yet the uterus did not rise. In Dr. Bell's case (*Medical Facts*, vol. viii.), the urine was got away regularly throughout the disease, but nevertheless the uterus remained retroverted, and was the remote cause of an inflammatory affection of the abdomen, which proved fatal. There is also allusion made (I think in Cooper's] work on *Hernia*) to a patient of Dr. Marcet, in whom the urine came away regularly, and yet the consequence of allowing the uterus to remain retroverted, was the death of both mother and child.

Dr. Merriman, whatever he may say in some parts of his dissertation on retroversion of the womb, evidently does not consider retention of urine the cause; for he gives several cases where this symptom was never present, and in one of them the retroversion continued till the end of pregnancy. There is also a case in the *New York Medical Repository*,

found impossible, in every situation we could think of, to introduce any one more than an inch or two into the urethra, without drawing off any urine."

vol. xl., where the urine was never obstructed at all, and where the disease continued for some months, till the woman died.

From all which I would conclude, that when the uterus is retroverted, it will generally remain so, unless reduced by manual interference; that in this state, every exertion of the patient to empty the bladder or rectum will tend to increase the complaint; that in many cases the disease will proceed, until there is complete retention of urine, together with an impossibility of introducing the catheter; that merely drawing off the urine, even were that always possible, will not be sufficient to remove the disease; that therefore, the replacement of the uterus by manual efforts, which in no case has produced any bad consequences, should be immediately attempted, and will in most cases be successful.

107, George-street, Glasgow, March, 1828.

III. *Diseases of the Brain and Spinal Cord.*

DR. ABERCROMBIE'S recent work* on this subject is divided into four parts. In the first are discussed the inflammatory affections of the brain; in the second, the apoplectic; in the third, the organic diseases; and in the fourth, the diseases of the spinal cord. Besides these, there are supplemental chapters on tubercular disease of the brain; on certain diseases of the bones of the head, and of the pericranium; on the circulation in the brain; and on diseases of the nerves. The author's object is, professedly, to confine himself to what he has himself seen. The greater part of the volume is occupied by cases, of which it may be permitted to remark, that they are always apposite, and are clearly and briefly related. The author quotes the observations of others only to confirm or complete his own; and these borrowed facts are kept altogether distinct from those that rest upon his own authority.

The work certainly is more fitted for frequent consultation than for continuous perusal, and it admits very ill of condensation or analysis. This is the less to be regretted, as the papers of the author, in the *Edinburgh Journal*, so long and so favourably known, contain the greater part at least of the materials of his present performance. Let it not be supposed, however, that it is merely a republication of these papers. The additions are considerable and valuable; the arrange-

* *Pathological and Practical Researches on Diseases of the Brain and the Spinal Cord.* By John Abercrombie, M. D. 8vo. pp. 444. Edinburgh, 1828.

ment is now rendered more regular and systematic, and some corrections have been made. Thus, in the *Journal*, many cases, evidently acute, were ranged under the title of "chronic inflammations." This inconsistency, which is now rectified, Lallemand has criticised—and justly. Dr. Abercrombie's object was, to distinguish these cases from acute phrenitis. The inaccuracy was not the less, however, and might easily give rise to dangerous practical errors in those who remembered the term employed, but forgot the reasons for employing it. Having introduced this verbal criticism, it may be allowed to ask, with a contemporary critic, what advantage the French word "ramollissement" possesses over its English equivalent, "softening?" The disposition to trust in names is too general. The introduction of such words as this tends to foster it, by leading to the belief that more is understood than really is so.

Every one conversant in morbid dissection must have seen abundant proof of the extreme obscurity of the diseases of the head. Where the symptoms during life have been acute, there may be little or no trace of disease in the brain or its membranes. These may be extensively altered, after comparatively insignificant illness; and the same pathological state is by no means found to accompany uniformly or exclusively the same phenomena of disease. These discrepancies make description and classification extremely difficult. To them it seems mainly attributable that Dr. Abercrombie's arrangement is so far imperfect, that it leads him to not unfrequent repetitions. For example, a preliminary sketch is given of the symptoms that indicate inflammation of the encephalon in general. These of course are not always the same; and five forms of the affection are accordingly described. Now, as the author does not think that these different forms are referrible to differences in the seat or nature of the inflammations, he is obliged to repeat many of his nosographical descriptions in the subsequent account of the inflammations of each of the different textures. This tends to perplex the reader, and gives to the work an appearance of confusion.

The most striking difference between Dr. Abercrombie's views and those of Lallemand, and the other French pathologists, is his greater hesitation in referring particular symptoms to particular lesions. But even the French authors admit that their diagnoses can be drawn at the outset of the diseases only; and that the different diseases are subsequently combined, and all tend to induce, sooner or later, the stupor and palsy, in which their symptoms are equally confounded. Making every allowance for earlier and superior opportunities of observation, there seems reason to fear that Dr. Aber-

crombie's estimate of the difficulties of the investigation is more accurate than theirs. Certainly nothing can be more pleasing or more plausible than Lallemand's analysis of his cases, and the ingenuity with which he traces every change of symptoms to some change in the degree or seat of the inflammation, or to some collateral effect produced by it.

Dr. Abercrombie's preliminary chapter is closed by an abstract of the conditions of the different functions and organs in inflammations of the brain. Their extreme variety may be estimated from a single example. He has seen the pupil sensible to the last: it may regain its sensibility after having been dilated and immovable, and vision, previously lost, may be restored, while the disease is still advancing. One pupil may be fixed; the other movable. The pupils have been known to dilate, instead of contracting, in a brilliant light. It is not mere knowledge which can guide a man through this labyrinth, but that sound and ready judgment, which contributes more to eminence in every branch of medicine, than all the learning of the schools.

“ In this important diagnosis, minute attention to the correspondence of symptoms is of more importance than any particular symptom. Thus, the peculiar oppression that accompanies a high degree of fever, is familiar to every one, and is not reckoned an unfavourable symptom. The same degree of oppression occurring without fever, or with very slight fever, would indicate a head affection of the most dangerous character. In the same manner, a degree of headach and delirium, which, accompanying a high degree of fever, would be considered as symptomatic, accompanying slight fever would indicate a dangerous affection of the brain.” P. 16.

Inflammation of the dura mater is rarely idiopathic. It often arises from affections of the bones, as is well known to surgeons. Many cases are given, in which it supervened on diseases of the ear. In all these cases, the other membranes, and the brain itself, seem to have suffered, and no symptom appears to indicate exclusively the affection of the dura mater. There are some interesting instances of recovery after perforation, and after the spontaneous discharge of matter.

Under the term meningitis, the author includes inflammations of the pia mater and arachnoid. These he believes it impossible to distinguish from each other, either by the symptoms during life, or by the appearances found on dissection. To this meningitis he ascribes the acute phrenitis of nosologists; and another train of symptoms exceedingly resembling those of delirium tremens, and most common in the irritable, and in those labouring under other diseases. This form of disease, with symptoms more like mania or hysteria,

than inflammation, occurs unquestionably where there is no reason to suspect the common causes of delirium tremens to exist. It bears bleeding ill, and proves fatal generally by sudden collapse. Neither in the acute phrenitis, nor in this more insidious form, do the appearances on dissection indicate much disorganization. Meningitis often comes on with general convulsion: Dr. Abercrombie thinks it a common cause of the convulsions of infants. Lallemand considers general convulsion and delirium as almost certain marks of meningitis, whenever they occur either as the sole symptoms, or in the course of other cerebral diseases. In the more chronic forms of meningitis, there may be found pseudo-membranes, and thickening of the meninges, with serous or puriform effusion.

The inflammation of the substance of the hemispheres is fully illustrated. The symptoms are again represented as perplexingly various. Headach, followed by convulsion and palsy, more or less general, seem the most common. Sometimes this inflammation gives rise to an attack exactly like that of hemiplegia; a most important fact to be borne in mind in practice. Sometimes death occurs in the inflammatory stage; sometimes there is softening, or undefined suppuration, or more or less completely encysted abscess. The cases detailed illustrate all these modes of termination. They appear to support, to a certain extent at least, the opinion, that the most decided symptoms occur during the stages of inflammation and softening; and that, as the suppuration takes place, they abate, to disappear more or less completely when an encysted abscess has fairly formed. Such abscesses, and the indurations, which Dr. Abercrombie describes as arising from chronic inflammations, and of which he traces the progress till they assume the character of incurable diseases, by becoming surrounded by capsules, are to be viewed like foreign bodies, to which the brain may be adapted, so that its functions shall be little impeded, but which are perpetually liable to induce new and dangerous attacks of inflammation.

The softening so often spoken of is viewed by Dr. Abercrombie as generally, but not always, the consequence of inflammation. When it occurs in the superficial part of the brain, he thinks that it may arise from deficient supply of blood, from disease of the arteries. Thus he would reconcile his own observations with those of MM. Rostan, Lermnier, &c. who regard it as an affection *sui generis*, distinct from inflammation. Dr. Abercrombie conjectures that it may be analogous to gangrene in other tissues, and like it, may depend either on over action, or deficient nourishment.

It may be doubted whether this view is correct. The softening seems rather an intermediate state, through which the tissue passes in its progress to suppuration. It is not found in cases more protracted, or more violent than those in which suppuration is met with, as we should expect, were it allied to gangrene. It is very analogous to the change induced by acute inflammation in the lungs or liver; and chronic inflammation in the brain, by Dr. Abercrombie's own showing, is more apt to induce induration than softening. Softening, he believes, is more common in the central medullary parts than in the cineritious matter, which is more liable to suppuration. Now this cineritious substance is known to be by much the more vascular, and should therefore pass the sooner into suppuration. The admixture of pus, and the different natural colour of the tissue, account sufficiently for the softened parts in this situation, being unlike those in the other. Of the two cases which are adduced as instances of softening of the cortical substance without inflammation, in one at least, the symptoms were decidedly inflammatory. So also is it with many of M. Rostan's own cases. Lallemand has endeavoured to show, that in all the instances in which softening has been found, the patients were cut off before suppuration had time to take place, or were of that advanced age at which that process is least perfectly and least promptly performed.

The inflammations of the central parts of the brain are important, from their frequency in infancy and youth. The proofs adduced by our author are quite convincing, that from these inflammations arise the symptoms supposed to characterize hydrocephalus. Even when these are most insidious, he traces them to a low degree of inflammatory action; and quotes in confirmation two cases, in which these very insidious symptoms arose from injury. Sometimes the lining membrane of the ventricles is inflamed, and then the effused fluid is turbid or puriform, and false membranes are sometimes formed. The serum is limpid when the membrane is not directly inflamed, but excited by disease of the surrounding parts. These are generally softened, the septum often perforated, and the fornix diffluent. These states may exist without effusion; and all the marks of hydrocephalus may be present. Serum may exist in large quantity, and cause no bad consequences. It is not the effusion, then, that gives the disease its fatal character, but the diseased state of the structures, of which the effusion is a consequence. Hence the clear indication for active antiphlogistic treatment. The time for it is short. The more acute the attack, the greater is the chance of recovery. The low strumous inflammations are the

most hopeless. No reason exists why serum should not be absorbed from the brain, as from other organs; yet the ambiguity of the symptoms renders it doubtful whether hydrocephalus, strictly so called, has ever been cured.

When considering the causes of these inflammations, our author warns us, that alarming cerebral symptoms, even coma and spasmodic rigidity of some of the limbs, may occur during fevers, and pass off with the primary disease. Affections of the head often attack those labouring under "phthisis, different forms of scrofula, diseases of the liver, and particularly children suffering from diseased bowels and mesenteric glands." Every one knows the perplexing train of intestinal disorders, which are represented by authors as precursors of hydrocephalus. The view of Dr. Abercrombie seems the most natural and just; that these are not the causes of the diseases of the brain, nor directly connected with them, but are simply proofs of the general tendency to low inflammation. The causes which immediately direct this upon the brain may be too slight to attract attention.

The only exceptions stated to this doctrine, are ischuria renalis, and an affection of the gastro-intestinal mucous membrane in very young infants. These are supposed to involve the brain directly, and the latter, like the former, by suspending the secretion of urine.

Dr. Abercrombie's treatment has nothing in it of the hesitation or uncertainty of his pathological doctrines. The remedies, he justly tells us, are few and simple. Every thing depends on their prompt and decided use. General and topical bleeding, very active purging, cold applied to the head, either by means of a bladder of ice, or of cooled water, or by directing against it cold water in a stream, are the means advised. The last mode of applying cold is so powerful, that it must be employed with much caution. It is the most effectual means of calming excitement, of rousing from coma, and of subduing convulsions, particularly in children. Blisters are improper at first, but of much use when applied to the head and neck, after the violence of the attack has been subdued. Mercury may often injure in the early stages, and is little entitled, in any instances, to the implicit confidence which some place in it. Free purging is exceedingly advantageous, and croton oil is often the most convenient purgative. Recoveries are rare; but they have occurred in circumstances apparently so desperate, that no one is warranted in soon or lightly abandoning a patient as utterly hopeless. These are Dr. Abercrombie's views.

The tubercular disease of the brain, the affections of the

bones, and of the pericranium, are fully considered. Some of the cases show an extent of disorganization under which it is astonishing the patients could live. The symptoms are, as usual, obscure and irregular. In the diseases of the bones and pericranium, cerebral symptoms come on, only from the propagation of the inflammations to the brain or its membranes. Division of the pericranium, when it is inflamed and tender, and perforation of the bone in some rare cases, in which matter seems evidently to exist below it, constitute the only peculiarities of treatment.

Allied to the tubercular disease in obscurity, and perhaps in nature, are the other organic diseases treated of in the third division of the work. Various forms of these are described, and various trains of symptoms, which seem to arise indiscriminately from them all. These it is impossible to notice individually here. Inflammation, producing softening and suppuration, is apt to occur. It seems pretty certain that the morbid productions generally make themselves known only by inducing inflammation, and that except by combating this inflammation, medicine has over them exceedingly little power.

In the second part of his work, Dr. Abercrombie describes three forms of apoplectic disease. In the first, there is sudden coma. In the second, confusion of mind and coma follow, after a longer or shorter interval, an attack of acute headach, general coldness, faintness, and vomiting. These first symptoms may pass entirely off; and in the interval, before the accession of the others, there may not exist even the least deficiency of muscular power. In the third form, the coma is absent, or exceedingly transient, and palsy is the first and prominent symptom. These forms are variously combined, and one may pass into another.

The second, only, arises from one uniform cause—rupture of some blood-vessel, and effusion of blood. The symptoms are familiar to surgeons, as produced by violence, and must vary with the seat, the extent, and the rapidity of the effusion. Dr. Abercrombie attributes this effusion, in almost all instances, to disease of the coats of the arteries, and thinks that there is no such derangement of the circulation as occurs in common apoplexy. Some such disturbance, however, seems pretty clearly indicated, by the severity and suddenness of the attack. Is it not probable, that the rupture of the vessels shall have arisen immediately from something unusual in the motion of the blood through them?

Where the effusion is extensive, the cases are generally fatal. Smaller extravasations become causes of palsy. That

which gives to them their most hopeless character, is the softening of the brain around them. This Dr. Abercrombie ascribes to the disease of the vessels from which the effusion has itself arisen. It seems more probably the result of inflammation, excited by the effused blood, as by any other foreign body. This view is of much practical importance. Lallemand shows that these inflammations are the causes of most relapses, and justly warns his readers of the danger of inducing or promoting them by the administration of stimuli. If inflammation can be kept off, the coagulated blood becomes surrounded at an uncertain period, by an organized cyst, and is itself gradually absorbed. Dr. Abercrombie has never found the cyst obliterated, or filled with serum, as some foreign observers have. These changes do not correspond with the progress of the symptoms, which go off when there is reason to believe that the coagulum remains, and remain till death in cases where dissection proves that it has been totally removed.

Dr. Abercrombie places no reliance on the supposed connexion of palsies of particular organs with lesions of particular parts of the brain. He quotes from Cruveilhier and others, cases that tend to disprove this connexion. Those which go to prove that paraplegia may arise from disease within the head, are generally inconclusive, he says, from the want of proper examination of the spinal column.

He objects to the common name "serous apoplexy." He shows that copious effusion may exist, without apoplectic symptoms; and that these may be severe, when exceedingly scanty effusion is the only morbid appearance. Symptoms said to forbid bleeding, occur in cases distinctly sanguineous. Cases ending in effusion of serum, may present at first every mark of plethora and over-action. He therefore concludes, that effused serum is only a consequence of that derangement of the circulation in the head, on which the apoplexy depends. To explain this more fully, he considers the circulation of the brain in a separate section, certainly the most interesting in his work. Views very similar to his are taken by Dr. Arnott, in his recent treatise on Physics. A very brief notice of these doctrines is all that can now be ventured upon.

Reasoning from the structure of the cranium, which admits atmospheric pressure to act upon the brain only through the blood-vessels, and from the experiments and observations of Dr. Kelly and others, on the state of the brain after death by hæmorrhage, and by strangulation, our author concludes, that the absolute quantity of fluid contained within the head cannot be suddenly changed to any material extent. Any distention of the arteries produces a corresponding compression

of the veins, and turgidity of the veins must compress the arteries. So the emptiness of one set of vessels must cause unusual fulness of the other. The emptiness of the whole circulating system is counterbalanced by effusion of serum. In each of these states, however, the circulation is deranged, and the brain deprived of the supply of arterial blood necessary to excite its actions. This derangement may arise from increased impulse in the arteries, or from diminished area in the veins. Permanent causes of derangement may occasion no bad symptoms during repose, and after bleeding. Heat or over-exertion, by quickening the circulation, may render their effects serious or fatal. Thus is explained the frequent recurrence of apoplectic symptoms from slight causes, where there exist tumours in the brain, or in the membranes, or on the bone. The brain, in the most violent apoplexies, contains little, if any, more blood than in health. The external vessels are swollen to the utmost. Injection after death proves this. During life it is marked by the flushed face and the throbbing temples. The external vessels yield to the impulse. The internal cannot: the circulation through them is therefore deranged, or suspended, and remains so, until restored by the diminution of the impulse of the blood.

On similar principles, diminished impulse in the arteries may induce accumulation in the veins, and interruption of the circulation; and, consequently, ought to cause the same symptoms. It does so. For how else can be explained the giddiness and tinnitus that precede syncope; the confusion and headach that occur, on rising, in the extremely feeble; the coma, amaurosis, and deafness, which have been observed in the same circumstances, and which are cured by tonics and a nutritious diet?

The safeguards provided against these derangements are the unyielding structure of the sinuses, which resist compression; and the passage of the arteries through the bones of the cranium, which must oppose the entrance of too much blood.

Thus far Dr. Abercrombie, who judiciously keeps his speculations apart from his facts, and hesitates to venture upon any conclusion which his observations do not fully warrant. It may be added, that compression of the brain has been admitted to be the cause of certain symptoms on authority only, with scarcely a shadow of proof. How can compression injure the function of the brain, except as it acts upon every other organ, by diminishing the supply of blood, or interrupting its regular renewal? The brain of one in a diving-bell is exposed, as Dr. Arnott observes, to a pressure of several atmospheres; but divers do not become apoplectic. The

increased pressure acts upon the brain; but it does not disturb its circulation, for it affects equally the arteries and the veins.

Depletion cannot withdraw much fluid from the cranium; but it tends to take off that impulse which prevented the equilibrium from being restored.

Bleeding, therefore, first from the arm, and then from the temporal artery; very active purging; cold applied to the head, as in the inflammations, are the remedies to be used. Bleeding from the jugular vein Dr. Abercrombie thinks less useful than from the temporal artery. The latter tends to divert blood from the brain much more surely than the other does to withdraw it. So essential does he consider purging to be, that he even injects croton oil with a tube, when it cannot be swallowed. Admitting no such disease as the serous apoplexy of nosologists, he recommends the same treatment for all cases, modified of course according to differences of age, of sex, and of constitution. A weak languid pulse, he says, often rises after bleeding. To show that most appalling symptoms are not desperate, he refers to a case, in which the patient, after three days of extreme danger, recovered after the loss of 100 ounces of blood, and the purgative action of 20 drops of croton oil, at different intervals.

Emetics and stimulants he thinks may be useful, where the active depleting measures fail to restore the regular tone and action of the vessels. At first they are always improper; and equally so in every stage of the apoplexy from effusion of blood. In the difficulty of distinguishing these cases consists the delicacy of the practice.

The same principles regulate the author's treatment of recent palsies. Many cases tend to shake the belief, that those which are inveterate are necessarily dependant on organic disease, and therefore incurable. Stimulants, he admits, may sometimes be useful, as exciting the nervous system. To render them safe, he advises that the patient be kept low. Most cases tend to spontaneous amendment, unless inflammation ensue. The risk of inducing this must always be borne in mind, when exciting medicines are employed. Friction, and exercise, as soon as it can be taken, are the safest and the best auxiliaries.

The author illustrates, from his own experience, and from the works of other pathologists, all the known diseases of the spinal marrow. No space now remains for considering this valuable chapter. The complaints of which it treats are at once important and obscure; particularly those forms of disease described by Dr. Burns, under the name of "spinal irritation." Two instances of these anomalous affections have

been communicated by the late lamented Dr. G. C. Monteath.* No cases could prove more completely their obscurity, and their intractable nature. Palliative treatment only seems admissible, and to time, rather than to medicine, the credit of the cure is generally due.

J. S. C.

IV. *Remarks on the Medical Topography of the Parish of Neilston.* By CHARLES RITCHIE, Member of the Faculty of Physicians and Surgeons of Glasgow.

FROM peculiarities in the situation of the country surgeon, he cannot be systematic, and can rarely be minute, in the investigation of disease, or of the effects of remedies. His usefulness to his profession, therefore, on matters of ordinary medical inquiry, need not be counted on. With these disadvantages, his opportunities, however, appear to be very favourable to the study of the medical topography of his immediate neighbourhood; and in submitting to the readers of this Journal the subsequent remarks on that subject, arising out of a residence of seven years in the parish of Neilston, I would be understood rather as pointing out to surgeons in the country a useful and pleasant subject of inquiry, than as having availed myself in the best manner of my own advantages.

General Description. The parish of Neilston is situated in the county of Renfrew, between $55^{\circ} 45'$ and $55^{\circ} 49' 30''$ of north latitude. It is at its eastern extremity within seven miles of Glasgow, and three miles of Paisley; and at its west, it is distant eleven miles from the sea coast at Irvine and Ardrossan. In shape it somewhat resembles a wedge, being gathered in at its north-east end, where it unites with the parishes of Paisley, Eastwood, and Mearns, into a space not exceeding a mile and a half; and proceeding south-west to its junction with the parishes of Stewarton, Dunlop, and Beith, it becomes expanded to between five and six miles. Its northern boundary is the parish of Lochwinnoch on the

* The mention of Dr. Monteath's name may excuse a feeble tribute to his memory from one who knew him well, and loved him much. The admiration with which all viewed his powers, was only increased by closer intimacy. None but those who were much with him could imagine the minute attention that he paid to every case; the continued reflection by which he prepared himself for every operation. It was this which gave him confidence and resources in every emergency, and enabled him to accommodate his procedure to every change of circumstances. He was not more admired as a surgeon, than esteemed as a man, by all who came under his care. His death has been universally lamented as a loss to the public, and to the profession which he adorned.—J. S. C.

north-west, and the Abbey parish of Paisley on the north and north-east; and along the entire south-east, it joins with the parish of Mearns. Its length from north-east to south-west is between seven and eight miles; and across, it averages about three miles and a half. It contains 12,500 acres, and 19.56 square miles.

The general arrangement of the land is very unequal. In the south-west quarter, for about six square miles, it consists of high table-land, having an elevation in general of about 500 feet above the level of the sea, and at several points the ground rises suddenly into insulated hills of a greater elevation; one of the most remarkable of which, from its being at top of an oblong flat shape, is named Neilston Pad, and is stated to be 600 feet above the sea. The exposure of this portion is north-easterly. In the north-west quarter, the ground rises abruptly into another range of high land, which, running for a distance of about six and a half miles, in a direction E.E. and by N. constitutes the northern side of the parish. The general elevation of this portion is above 500 feet, and its character bolder and more abrupt than the adjoining table-land. At its highest point, it probably exceeds 600 feet in height, and is distinguished by the name of Caldwell Law. The exposure of these two portions of high land is toward each other; the table-land on the one side rising rapidly south, with a north-east exposure, and the Caldwell range on the other fronting south and south-east; by which means, the whole, when viewed from any of the numerous eminences, presents the appearance of a spacious valley. This space will include between six and seven square miles, and at its lowest point is more than 300 feet above the sea. Towards the west, the high grounds on each side are separated by Loch Libo only, a sheet of water of some magnitude, and by the great road from Ayrshire to Glasgow. About four miles farther east, or to a point which is nearly half a mile west from the village of Neilston, and which may be considered as the eastern extremity of the valley, its two sides again approximate, forming a ravine, or gully, of great beauty, through which the Levern water passes from the southward towards the village of Barrhead, and the great road from Glasgow to Ayrshire has been cut directly west.

In the remaining three miles, which form the eastern end of the parish, the table-land on the south-west is gathered into ridges, having a rapid slope to the north-east; and the northern range of hills also become gradually lost in a direction more directly north. On approaching this extremity of the parish from the east, the ground is observed to have a

south-westerly exposure, within a very short distance of the commencement of Neilston district; and placing ourselves here, the view westward does not exceed three miles, being terminated in that direction by Neilston Pad, and the high ground on which the village of Neilston is placed. At the south, at the distance of about a mile, a ridge of land fronts northward; and on the north, the general disposition of the rising grounds completes the representation of another valley, or glen, containing about four square miles; in the centre of which the village of Barrhead is placed. The elevation of this valley above the sea does not average probably more than 130 feet.

Roads. In addition to the principal line of road, which has been stated as passing east and west along the low ground, nearly in the centre of the parish, there are three others, running also in the direction of its length. One of these, commencing at the north-east extremity of the northern range of hills, near the village of Barrhead, is carried westward along their summits, till it terminates in the parish of Beith. Another passes up from Barrhead southward, along one of the ridges which are projected from the table-land above, till it reaches the village of Neilston, where it is separated into two; one of which, carried along the hilly land to the S.S.W., and skirting the foot of the Pad hill, terminates at the S.W. corner of the parish, in the direction of Stewarton, while the other passes more directly west along the south edge of the table-land, and nearly parallel with the great road to Ayrshire, which it joins, and may be said to bisect the parish pretty accurately in the direction of its length. Besides these, there are various roads communicating at different points with the adjoining parishes, and with each other.

Streams. There are three streams of principal note in this parish, as being applied to manufacturing purposes. They originate in artificial reservoirs, which are situated in the high grounds towards the south-west, and which occupy conjointly about 230 acres of land. Thence they descend in a north-easterly course towards Barrhead. The principal stream, the Lavern, having previously received another, named the Kirkton, edges along the north side of that village, till passing into the Abbey parish of Paisley, it merges in the river Cart, and the third, the Brock, passing by the south side of Barrhead, enters the parish of Eastwood. At their different sources, these streams are rich in finny inhabitants, such as trout, perch, &c.; and previous to the introduction of manufactures, the Lavern was well supplied during autumn with salmon of considerable size.

Soil. A striking difference in the soil, natural productions,

and climate of this parish, is found to obtain in its higher and lower districts. In the former, the soil is either a thin light mould on whin-stone, or a cold moss, equally unfavourable for a system of regular cropping, but affording in general excellent natural pasturage. In the lower district, the sub-soil is a hard till, and in some places freestone. The ground here is chiefly under crop, and near Barrhead is favourable even to the cultivation of wheat. Considerable differences are likewise observable in the general appearance of the live stock of the two districts. Above the village of Neilston, the greatest proportion of the cows are of the short-horned thick-set Ayrshire breed; but it has been remarked, that transferring them to the cultivated grasses of the lower district, is apt to be succeeded, in no great time, by a lengthening of the horn, and a thinness of the flanks, which eventually changes their appearance.

Minerals. Coal is found at various points of this parish. In the higher district, it lies at so very acute an angle, in some places being almost vertical, that it presents great obstacles to being wrought with success. At Hurlet, however, within a mile of the N.E. angle of the parish, there are various substantial seams lying quite horizontal, and affording a constant supply of fuel.

Springs. The state of the wells varies in the different districts. Throughout the greater part of the high land on which the village of Neilston is placed, the supply of water from these sources is during summer a good deal precarious. This appears to be occasioned by the numerous reservoirs in that district acting as drains; as on the opposite range to the north, where the ground is higher, but where no reservoirs are placed, the wells, especially to the eastward, have withstood the most prolonged droughts. At Neilston, after a dry summer, most of the wells remain empty for several weeks after the rains set in. At Barrhead, the supply of water is longer continued, and sooner restored; but at Hurlet, in the immediate neighbourhood, and nearly 50 feet below the level of Barrhead, the wells are drained by the operations under ground.

Climate. Owing to the great differences in the respective heights of the upper and lower districts of this parish, a record of the weather, to possess value, must necessarily be founded on observations made at several places. No record of this description, continued for a sufficient period to give it interest, has ever been kept. It is familiar, however, with every resident, that in the low lands near Barrhead, the climate is much milder than in the neighbourhood of the village of Neilston.

The change in this respect becomes remarkable indeed, not more than half a mile to the westward of the former of these villages; and in the upper district of the parish it is so great, that an interval of from three to four weeks is usual in the harvests of the two places.

The quantity of rain which falls annually has never been noted; but the common belief is favourable to the supposition, that it is also to some extent in the ratio of the height of the several places.

The prevailing winds are westerly and south-westerly, and from the great elevation and irregular surface of the ground, they traverse the district often with great violence. The narrowing in of the grounds on both sides, at the lower outlet of the high division of the parish, is also extremely favourable to the production of currents; and during the prevalence of south-westerly winds, in particular, these sometimes break on the low grounds near Barrhead with much force. When these winds obtain, the barometer is in general low. The exposure of the parish occasions easterly and north winds to be felt with much keenness. These prevail most in the spring months; and while they continue, the barometer is in general high.

History. Previous to the introduction of manufactures into this parish, the number, and political and moral situation of its population may be presumed to have sustained little change from the period of the Reformation. Many of the occupiers of land, in this and the adjoining districts, date the original settlement of their families to the times immediately subsequent to the persecutions for religious liberty. A few families who had held lands in lease for a much longer period, have only of late become extinct; but a great proportion of the present farm tenants, especially in the higher quarters, have succeeded to leases which have been continued in their families nearly since the Reformation.

The art of bleaching linens was first introduced into the parish about the year 1765. A printfield was established about 1770, and the first cotton-mill was erected in 1780. Within this period, the value of land in the parish did not average above three shillings per acre; much of it was in the state of unreclaimed moss; the roads were of a very impassable kind, and the usual mode of conveyance for goods was by pack-horses. About 1791-2, the spinning of cotton became much extended, and the art of bleaching entirely altered; and since that period, improvements in every department of the cotton manufacture have followed each other with inconceivable rapidity. A necessary result of these changes has been a rise in the land rental.

In 1791, this had already amounted to £4,200 sterling, or nearly seven shillings per acre; and from that year till 1816, it received a further augmentation of about 215 per cent., the real rental, as stated in the county cess books in 1816, being £13,139: 12: 4*d.* sterling, or something more than twenty-one shillings per acre. A corresponding change has taken place in the aspect of the country; the ground is under superior cultivation; villages have sprung up in the vicinity of every public work, and the roads are become equal to those in any part of the kingdom.

Population. The earliest enumeration of the inhabitants was that made by Dr. Webster in 1755. The result of his census gave a population of 1,299 souls to the parish of Neilston. In 1791, the increase in the number of inhabitants, as ascertained by Sir John Sinclair, was 1031, or something more than 79 per cent. in thirty-six years; and from this till 1821, it amounted to 4,219 souls, being at the rate of above 181 per cent. in thirty years.

The rate of increase on this latter period does not appear to have been equal on the whole thirty years. During the first ten, it was a fraction more than 6 per cent. per annum, or about equal to the rate for the whole period. The gross amount in 1791 being 2,330 souls, and in 1801, 3,796 souls. In the remaining twenty years, the increase amounted to about $3\frac{1}{2}$ per cent. per annum; the gross number of the population in 1821 being 6,549 souls.

In 1821-2-3, several new manufactories were established in the parish; and supposing the increase of population from this cause to have taken place in a similar ratio as in the twenty preceding years, the amount now would be about 7,800 souls. It is on many accounts probable, however, that the rate of increase has not been equal to what is here stated. In 1824-5, no new works of any magnitude were established; and in 1826, a considerable decrease in the number of inhabitants is known to have taken place. For which reasons, it will be nearly correct to estimate the population of this parish in those years, since 1821, to which the subsequent remarks relate, at no more than 7000 souls.

Assuming this calculation as accurate, the number of individuals to each square mile will therefore be 359. The degree of density in this respect is very unequal, however, in the different divisions of the parish. In the higher district, including the village of Neilston, the actual amount of population is only about 2,876 souls, or more than one-fourth less than that in the lower, while the space occupied by them is about two-thirds greater. The number of families employed in agri-

culture in this district is 147, or nearly one-half more than in the lower. In this latter district, the population amounts to about 4,124 souls; of these, 84 families are engaged in agriculture.

Descriptions of Population. The introduction of manufactures, and the change of habits, which has arisen from this cause, are still too recent to have effected any material alteration on the manners or prejudices of what may be termed the aboriginal inhabitants; and there continue to obtain, therefore, many striking differences between the individual portions of the mass of population, which cannot fail to be interesting to the medical inquirer. At present, however, distinctions exclusively statistical only are subjoined. Of these, the distinctions into agricultural and manufacturing population seems the most important.

No classification of these classes appears in any census previous to that of 1811. In this year, the number of families employed in agriculture was 182, and in 1821 it amounted to 204, being an increase of about 12 per cent. only on the ten years. In 1811, the number of families engaged in trade or manufactures was 672, and in 1821 it was 1040, being an augmentation of 55 per cent. on the period. Exclusive of 82 families in the first census, and 25 families in the last, which were not comprehended in either of the two classes, the proportion of agricultural families to those employed in manufactures was thus in 1811, nearly as two to six, and in 1821 as two to ten; or in the first instance, rather more than one-fourth, and in 1821 something less than one-fifth of the whole population.

Nations. Another feature in the general history of the population which it is important to know, in forming an estimate of its character, is the distinctions of country. The great division here is into Scotch and Irish; the number of others settled in the parish being too inconsiderable to require notice. The first enumeration of this kind was made in 1821, in which, besides seven English families, the number of Scotch was 991, and of Irish 261, or a fraction more than one-fourth of the whole.

Sex. The proportion of males to females throughout Scotland is as 984 to 1110, being an excess of females above males of only between one-eighth and one-ninth. In the county of Renfrew, which is almost generally manufacturing, it is as high as 512 to 610, giving an excess of between one-fifth and one-sixth; and in this parish the number of the respective sexes is 2957, and 3592, being an excess of females over males of almost one-fourth, or double the amount for the

kingdom in general. This remarkable disparity in the relative numbers of the sexes, may be presumed to arise chiefly from the existence of numerous bleachfields and cotton-mills. It is only during the last thirty years that the system of bleaching in the open air was abandoned for that within doors, in which latter method, the services of women are found to be infinitely more efficient than those of men; and within the same period also, the proprietors of cotton-mills have been for various reasons gradually resorting to female, in preference to male spinners. In 1791, and previous to the general adoption of the improvements in bleaching, the number of males in this parish was thus even greater than of females; that of the former being 1187, and of the latter 1143. In the succeeding thirty years, however, the number of females increased 214 per cent., while the rate for males was no more than 149 per cent.*

Houses, &c. The houses of the farmers are in general long narrow thatched buildings, one story high, placed on the southern aspect of a hill, with their length north-east and south-west, unless there is natural shelter behind, when they are made to front north or north-east. On the smaller farms, they consist only of a room and kitchen, divided from the cow-house by a passage in the centre. On others, a milk-house communicates with the room at one end; and a barn with the cow-house, which is used also as a stable, at the other. In some, this barn is carried out at right angles from the west or storm gable, and sometimes three sides of an oblong square are formed by a cart-house being projected from the opposite end. The older houses are built of whinstone, with little cement, on a level with, and sometimes below the level

* The great disparity in the numbers of the two sexes which the government returns present generally, has been urged as a proof of the inaccuracy of these documents, and of the little value which deductions drawn from them can possess. The comparative equality which exists in the number of the sexes in agricultural districts, from whence emigration is assumed as most likely to issue, and the great excess of females in those places where manufactures are established, and to which the current of emigration is supposed in an especial manner to flow, is denounced as being peculiarly preposterous. In Glasgow, in particular, where the excess of females amounts to 17 per cent., the sound judgment and habits of careful inquiry of the respectable individual who prepares the enumeration tables for the city, have not exempted his results from these strictures.

It seems to be forgotten by those who entertain such views, that Irishmen can carry their wives and children with them to the neighbourhood of Glasgow with as much ease as it is admitted they do to the back states of America; that manufacturing districts also hold out, in the various kinds of occupation which are carried on within doors, strong inducements to the settlement of female workers; and that the army and navy are, in Scotland at least, supplied almost solely by the manufacturing population.

of, the adjoining ground. In these instances, the kitchen-floor is the natural surface; the byre is imperfectly causewayed, and the room only is raised into a formed floor of ashes or wood. The kitchen fire projects to within six or eight feet of the door. The walls are unplastered, and the windows, which are immovable, consist seldom of more than half-a-dozen panes. Houses of recent construction have the kitchen laid with flags, and the rooms with wood; they are also in general somewhat elevated; their windows are of larger size, and easily opened; and the low ceiling of smoked stobs of the older houses is exchanged for one of a proper height made of smoothed deals. The farm-houses are always built on ground having a declivity; but the rendering of this available for drains is in general neglected; and from the vicinity of the cow-house and stable, the whole is rendered damp and unpleasant.

In the families of farmers, no servant is kept exclusively for domestic purposes, a circumstance, the effect of which, in a medical point of view, will be easily understood.

Cotton-spinners are collected into villages at the respective works. The ground-floor of their houses is damp, but the upper floor comfortable, although the quantity of accommodation in both is less than the number of inmates require. There is often, of course, much destitution to be observed among this class; but frequently also, there is an air of propriety in their domestic arrangements, which is very gratifying.

Bleachers are in general placed in one large sleeping room, filled with hospital beds, and having an anti-chamber, which is used for cooking and eating. Some of these houses accommodate sixty or seventy women, lying two or more in one bed. Their food, part of which in some works is boiled with steam, is prepared by a servant; and the task of cleaning the apartments is understood to be enforced, at certain intervals on the women themselves. The want of a separate sick-room has been often felt severely at these works.

The other classes of the manufacturing population rent houses in Barrhead or Neilston, which do not differ in their construction or internal economy from those of the same description of individuals in towns.

Number of Individuals in Families. This branch of inquiry has a direct reference to the means of accommodation possessed by individuals. Among the farming population, who in general are not deficient in house-room, the number of individuals composing their families is thus pretty nearly as their affluence, whilst with tradesmen, the number of the family is often a correct index of the deprivations to which they are

subjected. In the government lists, the number in each family in Neilston, averages five and a fraction. Few of the farms are large, but in one of the districts occupied exclusively by agricultural families, the individuals are to the families as seven to one; and in a village of cotton-spinners, it was nearly as six to one. Cottars, with small patches of ground, are rather numerous throughout the district, and it is this circumstance perhaps which reduces the general average.

Ages. It appears, by the returns to government in 1821, which are subjoined, that one-seventh of the whole population here is below 5 years of age; nearly a fourth part under 10, and more than two-thirds of the whole under 30 years of age, while the number who exceed 70 years amount only to one-forty-fourth, or little more than two per cent. of the whole population.

Under 5	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100
930	769	736	823	1,339	692	522	358	231	107	37	5

Religion. From the influence of religious feelings on the conduct of diseased persons, or which is equally material, on that of their attendants or nurses, a knowledge of their particular persuasion is important. The ignorance, in particular, of the Roman Catholic poor, along with peculiarities in their prejudices, a want of sympathy with the customs of society in this country, and the state of isolation in which they continue here, are productive often of much injury to them, when under the influence of disease. In this parish, the Roman Catholic families constitute about one-twelfth part of the whole.

Morality. The only particulars under this head which are of any interest to the medical inquirer, are the extent to which the use of spirituous liquors is carried, the frequency of syphilitic disease, and the number of illegitimate births which occur.

The proportion of houses of all kinds in which spirituous liquors are retailed is, to the whole population, as high as one to every twenty-five families; and subtracting the number of individuals below 15, and above 80 years of age, who may fairly enough be presumed to contribute little in this way, the number left for the support of each public house is just eighty-two individuals. These houses are confined principally to the two villages of Neilston and Barrhead, it never being permitted to establish them within the precincts of any public work. The beneficial effects of this rule, however, are a good deal lost in a practice which prevails of hawking spirits about

in bladders and jars. Till of late, illicit spirits only were sold in this manner by those immediately connected with their distillation; but the trade has now fallen chiefly into the hands of women, who purchase low-priced whiskeys from the regular dealer, and have no other means of subsistence than retailing them by stealth at the different public works. In spite of these facilities, drunkenness, with the great proportion of the manufacturing class, is only an occasional vice. The unremitting nature of their employments, the strict discipline which obtains during the hours of labour, and the practice which is everywhere followed of paying wages at considerable intervals, in some cases every six weeks only, are circumstances which contribute to occasion this. In most instances, drunkenness is confined exclusively to these particular times, and its influence in producing disease is comparatively limited. Inability to work for a day or two, happens rather often indeed on such occasions with particular individuals from this cause; and sometimes these cases become protracted, and present themselves to the medical practitioner under the most acute forms of constitutional irritation, or general fever; but it has rarely happened to us to have observed persons employed at public works suffering from those specific effects of constant inebriation, which constitute delirium tremens.

In families in which all the members are so far advanced as to be fit for labour, the aggregate amount of their earnings is very considerable, and is in general placed at the disposal of the eldest female, whose sole employment consists in making purchases, and attending to the household duties. It probably depends on the comparatively little restraint imposed on these females, on their greater leisure, and on the seducing attentions of retail dealers anxious to cultivate their custom, that they do sometimes acquire habits of dram-drinking, which are seldom met with among the males of the family. When indisposition occurs with them from this cause, it does not always fall under medical treatment; and when a practitioner is employed, he must be content to guess only at its origin. In acute attacks supervening to this indulgence, pain in the region of the stomach or kidneys, great mobility of the muscular system, and sometimes an appearance of excessive prostration are met with, along with pyrexia. The urinary organs often sustain a greater share of the shock, than any other part of the system, and total paralysis of the bladder is not an unfrequent occurrence. When much vascular excitement, with severe local pain existed, in cases of this description, and when we were in ignorance of the exciting cause, bleeding was in general the first expedient for affording relief,

to which we had recourse, and in some of the cases it was employed to a great extent. It will not appear surprising, that in no instance was advantage obtained from its use. Purgatives, emollient enemata, and fomentations, were more serviceable; but it is worthy of remark, that détraction of blood was never followed in those cases by any of the evil consequences which are said to result from it in the delirium, which arises from drunkenness, or in diseases depending on abdominal irritation. Habits of drunkenness are with much justice supposed to lead often to the commission of suicide. No instance of this happened in Neilston, within the period of these observations.

Syphilis. The number of cases of syphilitic disease which come under the notice of the resident surgeons, is inconsiderable; and if taken as the measure of the habits of the population, is well fitted to impress us with favourable opinions of their morality. It was not unusual, however, to meet with the disease in its secondary stage in females, who were unconscious of their real situation. In these instances, the primary symptoms were in general mistaken by those affected for a species of hæmorrhoids; and indeed an inquiry into whether they had ever had this latter complaint, and where situated, gave us in those cases of ulceration of the fauces, and of cutaneous disease, in which there was any doubt, the best solution of our difficulties.

Illegitimate Children. There is no method by which the amount of these can be ascertained with the accuracy which would be desirable; the number recorded being a small proportion only of the real number. In the practice of medicine, among the class of females most exposed to this misfortune, and who in this district are a majority of the whole sex, a continual reference to the possibility of its having happened is indispensable. Sometimes a state of great exhaustion is feigned, as a pretext for confinement to bed; at others, uneasy sensations, and local pains of a more or less probable kind, are stated as inducements to the exhibition of medicine; and at all times, the history of the case is so perverted, that unless, as frequently happens, it be made to prove too much, great uncertainty is occasioned to the practitioner. Concealment of pregnancy is also met with conjointly with a really morbid state, and under such circumstances our difficulties are much increased. Appeals to the honesty of the individual, or threatenings of exposure have been seldom found to elicit information; and solemn averments of innocence, within even a short period before confinement, are so customary, that it is hazardous to attach to them any importance. It is remarkable, how-

ever, that in no case of this description which came under our observation, was the absence of menstrual secretion denied.

Expenditure for Poor. The average amount of money paid by the heritors and kirk-session for the support of the poor in this parish, during the thirty years previous to 1791, was £38: 18: 4 $\frac{3}{4}$ d. Since that time, the increase of expenditure for this purpose has proceeded at a more rapid rate, than that either of the population or land rental. The increase, as we have already seen, in the population in the thirty years succeeding 1791, being about 181 per cent., and that of the rental 215 per cent., while the increase on the expenditure for the poor has been as high as 418 per cent.; the average amount paid for this purpose in the period between 1791 and 1820 inclusive, being £198: 15: 11d. per annum.

In manufacturing districts, such as Neilston, the situation of the medical practitioner is a burdensome one, as regards the sick poor. A great proportion of his visiting list is filled with patients of that description, which in large towns would find their way to an hospital. The claims of these people on the attention of their employers are seldom so strong as to entitle them to having more than the mere means of subsistence, a few cordials, or articles of clothing bestowed on them; what else is requisite for restoration to health must be yielded by the medical attendant. As a means of obviating this evil, the servants at some public works contribute small weekly payments towards the support of a surgeon's fund.

Marriages and Births. The average number of marriages and baptisms registered from 1821 to 1826, has not been procured. The number of marriages in the thirty years previous to 1791 averaged 18.2 per annum; and during the thirty subsequent years, 33.53 per annum, being an increase on the number which occurred in the former period, of 84 per cent., while during the same years the average number of baptisms was as 65.7 and 110.63, being an increase of about 68 per cent. only, in the latter over the former years.*

The progress of the marriages which are registered has been less rapid than that of the population; the proportion during the first period being one marriage per annum to every 100 persons, and during the second to every 131 persons.†

Quantity of Sickness. This will be modified by the season of

* It will account for this, that while the register of banns is nearly correct, that for baptisms is very deficient, in consequence of the number of these which are performed by dissenters, with whom they are seldom recorded.

† In the adjoining parish of Dunlop, which is entirely agricultural, and where there are no dissenters, there was, on an average of 21 years, one marriage per annum to every 108 persons, and 3.22 births to each marriage.

the year, the nature of the season, and the different kinds of occupation. Adhering at present, however, to statistical facts only, it appears, from an analysis which is subjoined, of the sick lists of six friendly societies kept from periods varying from six to thirty years, and consisting of both sexes, and of every class of adult population in the parish of Neilston, that the amount of sickness among these has been within a slight fraction of 1 in 10 per annum; and the severity of this sickness may be estimated by the fact, that the mortality was equal to $10\frac{1}{2}$ per cent. on the number sick.*

This calculation does not of course include the sickness of children, which, on a comparison with that of adults, appears to be about one in two. The number of children treated in general practice to that of adults, during two years, having been ascertained as being 338 to 614, this will give a rate of sickness for the whole population of about 15 per cent., or nearly one in seven per annum.†

The proportion of female sickness to that of males in these lists, is in the societies as eight to ten, or 18 per cent. less; and in general practice, as 273 to 341, or 20 per cent. greater than the amount for males; a difference to be accounted for by the greater frequency of slighter degrees of indisposition among the former than the latter; and the fact, which is familiar to every medical man, that they apply also more readily for advice.

Comparative Sickness in different Trades. The amount of sickness among persons of different occupations, as taken from the same lists, is subjoined:—

	Number in Societies.	Number Sick.	Proportion.
Wrights,	463	25	1 in 18.52
Calico-Printers,	852	49	1 in 17.4
Farmers,	354	27	1 in 13.11
Cotton-Spinners,	754	59	1 in 12.7
Labourers,	1,629	170	1 in 9.58
Smiths,	132	15	1 in 8.8
Bleachers,	825	94	1 in 8.77
Weavers,	3,323	377	1 in 8.77
Tailors,	254	42	1 in 6.

Deaths. No register of the mortality of this parish was kept till 1823. The list for this year also is imperfect, in so far as it contains the number only, without any specification of the ages of twenty-four persons, who were buried at Barrhead. In 1824, the number only for both Neilston and

* See Table No. I.

† See Table No. II.

Barrhead was procured; and it is not till 1825 and 1826 that the mortality list for the whole parish can be considered as entirely correct.

In 1823, the number of funerals amounted, exclusive of still-born, to 129, giving a mortality of one in 54.26 persons annually. In 1824, it was 110, being one to 63.64. In 1825, it stood at 130, or one in 53.84; and in 1826, it fell to 107, being one death to 65.42. The average mortality of the parish for the four years has amounted thus, exclusive of still-born, to one death in 59.29 persons.*

The number of still-born children was never noted till the last two years. In 1825, they amounted to 14, being to the other deaths as one in 9.28; in 1826, to six, or one in 17.83; and including these, the real mortality of the parish, therefore, during these two years will be as high as one death in every 54.47 persons per annum.

There is reason to believe that these two years included both the maximum and minimum amount of the population of the parish for the period at which 7000 has been taken as its average amount; and the rate of mortality which is here given, may perhaps, therefore, be considered to be as nearly the correct rate for the district in general, as it is possible to be in so limited a series of years.

It appears from these registers, that a most important difference obtains in the relative mortality of the upper and lower districts of the parish. In the former, it amounted in 1825 to 50, and in 1826 to 37 deaths, or to one death only in 66.11 persons per annum, while in the latter, the deaths were 94 in 1825, and 76 in 1826, or as high as one in 48.51 persons per annum.†

The greater density of the population in the lower than in the upper district, the greater poverty of the inhabitants, and the fact of these being almost exclusively occupied at public works, in trade, or as common labourers, will account sufficiently perhaps for this striking contrast in the rate of mortality, without obliging us to seek for its causes in those differences of climate which are peculiar to each district.

The mortality among females would appear from these lists to be less than that of males. The actual number of the former in the parish being 21.13 per cent., and the amount of their mortality only 17 per cent. higher than that of the

* See Table No. III.

† The average number of deaths in the high district, during four years, was,	1 in 60.93
Do. do. in the low district, during do.	1 in 40.73
In the parish of Dunlop,	1 in 58.33

latter. The female deaths during the four years, exclusive of still-born, were 230, and that of males 197.

It is to be feared, however, that this greater degree of longevity in females than males here, is more apparent than real. A large proportion of the women engaged at the different public works belong to the Highlands; and when attacked by disease, they almost uniformly return to their homes, so that an instance of death occurring among them here is extremely rare. Again, the causes which are supposed to render a female more valuable generally than a male life, are not permitted to operate to any extent in this parish. The occupations of the two sexes are, for the most part, similar; and from the influence of this circumstance alone, even a greater destruction of life is more likely to take place with females than with males.

It is a curious fact connected with this matter, that the number of female deaths recorded in these lists, in the three years previous to 1826, is 157, or six less than the corresponding number of the other sex; while in that year, they amount to 73, or 39 more than the males. Of these, one-third took place below 10 years of age, and one-half below 30. One case is reported—"died in childbed;" and another is known to have been cut off by chronic inflammation of the peritonæum, after delivery; but with these exceptions, no cause of mortality, peculiar to females, operated more powerfully in 1826 than in other years, unless the comparative inability of this sex to sustain moral or physical suffering be admitted as one, in which case, the privations under which the manufacturing class laboured during 1826, will sufficiently explain the circumstance.

The proportion of deaths under 10 years of age in 1825 and 1826, in the parish in general was, inclusive of 20 still-born, as 104 to 257, or one in 2.47, or about 40 per cent. of the whole deaths. A nearly similar difference happens in these deaths in the two divisions of the parish, as was observed with regard to the general mortality; the number of children dying in the higher district being to the whole deaths there, only as 28 to 87, or one in 3.10, being about 32 per cent. of the whole.

It has appeared already, that two-thirds of the whole population being below 30 years of age, the probability of life here is not great; but taking into account the fact, that the different employments in this parish require a constant supply of young persons to conduct them, and that as these persons become infirm, they give way gradually to new comers from other places, it seems evident that the stock of individuals below 30 years of age must in this way be kept always rela-

tively higher than that of any other age, and this mode of calculating the value of life be very fallacious. The average age of all the persons dying here in 1825 and 1826 was thus, exclusive of still-born, as high as 34.79.

There are some most important differences observable in this particular, in the various classes of which this population is composed. The average age of the persons belonging to the agricultural population dying in 1825 and 1826, being 60.05;* that of the Scotch manufacturing population in the whole parish 33.67, and that of the Irish population so low as 30.19.

Longevity. The number of individuals in this parish above 70 years of age, in 1821, amounted to 149, being about one in every 44 persons, or nearly 2 per cent. higher than the corresponding number for the county, and about 33 per cent. less than the result for Scotland in general. There is at present one marked instance of longevity in the higher district. This individual has completed his 104th year, and, with a recollection of the past which is gratifying to others, he continues to enjoy a degree of health, which prevents his advanced years from being a misfortune to himself.†

No. I.

Abstract of amount of Sickness in Friendly Societies.

	Number of Members.	Number of Sick.	Number Died.	Yearly Average Number.			Rate per cent. per annum.		Average.	
				Number.	Sick.	Died.	Sick.	Died.	Sick in the Societies.	Died in the Societies.
1. A Male Society of 30 years' standing,	3930	414	45	131	13.80	1.50	10.53	1.14		
2. A Male Society 27 years' standing,	1943	181	18	72	6.70	0.66	9.30	0.92		
3. A Male Society 26 years' standing,	3141	360	39	120.80	13.84	1.50	11.46	1.24		
4. A Male Society 20 years' standing,	1605	147	9	80.25	7.35	0.45	9.15	0.56		
Total of Males,				404.	41.69	4.11	40.44	3.86	10.11	.96
5. A Female Society 6 years' standing,	328	16	2	54.66	2.66	0.33	4.86	0.60		
6. A Female Society 6 years' standing,	564	66	9	94.	11.	1.50	11.70	1.59		
Total of Females,				148.66	13.66	1.83	16.56	2.19	8.28	1.9

* In the parish of Dunlop, the average age of all the deaths for one year was 42.25.

† Since the above was written, this venerable individual has also paid the debt of nature.

No. II.

Comparative Numbers of Adults and Children treated in General Practice during Two Years.

	Males.		Females.		Children.	
	Sick.	Died.	Sick.	Died.	Sick.	Died.
1825.						
January,.....	13	2	28	1	9	1
February,.....	9	0	24	0	25	4
March,.....	11	1	13	0	18	2
April,.....	15	2	15	0	8	0
May,.....	14	2	19	0	13	0
June,.....	16	3	29	1	13	2
July,.....	9	1	23	2	12	0
August,.....	17	0	16	2	24	2
September,.....	11	0	14	1	15	1
October,.....	12	1	10	1	14	3
November,.....	10	0	16	0	11	2
December,.....	12	1	9	0	7	0
1826.						
January,.....	8	0	12	1	5	0
February,.....	5	0	3	0	10	1
March,.....	18	1	11	0	10	1
April,.....	12	0	8	0	15	1
May,.....	4	0	13	0	25	1
June,.....	9	0	12	0	8	0
July,.....	10	0	8	0	16	0
August,.....	10	1	20	0	20	1
September,.....	10	1	11	0	18	0
October,.....	15	0	10	1	15	1
November,.....	11	1	4	1	15	2
December,.....	12	0	13	1	12	1
	273	17	341	12	338	26

No. III.

Abstract of Burials in Neilston for Four Years.

	1823.			1824.			1825.			1826.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
January,.....	5	3	8	4	7	11	4	9	13	4	10	14
February,.....	2	2	4	5	3	8	6	7	13	7	6	13
March,.....	3	5	8	4	6	10	9	10	19	3	7	10
April,.....	8	8	16	4	3	7	4	6	10	2	7	9
May,.....	3	1	4	4	3	7	6	4	10	2	11	13
June,.....	3	3	6	4	3	7	2	2	4	3	4	7
July,.....	3	0	3	2	1	3	6	2	8	3	2	5
August,.....	4	3	7	5	2	7	5	5	10	2	4	6
September,.....	5	6	11	3	4	7	7	4	11	1	7	8
October,.....	5	8	13	0	5	5	4	6	10	2	1	3
November,.....	6	4	10	7	4	11	9	1	10	2	6	8
December,.....	7	8	15	0	2	2	5	7	12	3	8	11
	54	51	105	42	43	85	67	63	130	34	73	107

No. III. (CONTINUED.)

Of these there died—

	1823.			1824.			1825.			1826.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 1 year,	0	0	0				5	5	10	6	5	11
1 and under 2,	10	9	19				8	8	16	5	8	13
2 " " 5,	9	10	19				5	3	8	5	8	13
5 " " 10,	2	2	4				4	3	7	2	4	6
10 " " 20,	4	3	7				4	6	10	3	5	8
20 " " 30,	6	5	11				3	4	7	2	7	9
30 " " 40,	3	7	10				2	10	12	0	4	4
40 " " 50,	3	0	3				6	4	10	0	6	6
50 " " 60,	5	1	6				5	2	7	2	4	6
60 " " 70,	4	5	9				11	8	19	3	6	9
70 " " 75,	1	3	4				2	2	4	3	6	9
75 " " 80,	2	1	3				5	3	8	1	3	4
80 " " 85,	0	4	4				2	2	4	0	0	0
85 " " 90,	4	0	4				4	2	6	2	4	6
90 " " 95,	1	1	2				0	1	1	0	1	1
95 " " 100,	0	0	0				1	0	1	0	2	2
	54	51	105				67	63	130	34	73	107

[To be continued.]

V. *Case of Lithotomy, complicated with Obstructed Bowels; from the pressure of an Osseous Tumour in the Mesentery.* By JOHN MACFARLANE, M. D. Lately one of the Surgeons of the Glasgow Royal Infirmary, &c. &c.

ROBERT CAMERON, æt. 67, weaver, was admitted into the Royal Infirmary, on the 23d of January, 1827, on account of stone in the bladder. Complained of severe pain about the neck of the bladder, and at the glans penis, coming on frequently when at rest, and without evident cause, but always urgent during micturition, when at stool, or on the slightest motion of the body. The calls to void urine varied in frequency. For whole days he required to pass it every quarter of an hour, generally in a small stream, frequently obstructed, and accompanied by painful tenesmus. Had slight pain on pressure in the situation of the right kidney, and had several times voided small calcareous particles about the size of a pin head, and twelve months before, a hard smooth yellow stone, of the size and shape of a kidney bean. A large sound was readily introduced into the bladder; and from the irregular feeling and rattling noise communicated, it was evident that there

were several calculi. The urine was of a natural colour, but on standing deposited a small quantity of flaky sediment. The bowels were obstinately costive, and the abdomen somewhat tympanitic. These symptoms, commencing about 19 months before his admission, and gradually increasing for the last six weeks, had forced him to give up his employment.

On attentively examining this patient, to ascertain if any other disease existed likely to militate against the success of an operation, it was found, that with the exception of a slightly enlarged prostate, and flatulent distention of the bowels, no other morbid manifestation could be discovered; and these were not such as to forbid an operation, to which he was anxious to submit. Although advanced in years, he still exhibited a healthy and robust appearance, and possessed sufficient vigour to sustain the shock of an operation, and afterwards to establish an efficient process of renovation. The straining on going to stool, and while micturating, was excessively severe, and resembled much the propulsive pains of parturition; but it was believed that the obstinate constipation, and the irritation from the calculi and enlarged prostate, were sufficient to account for this unusually urgent symptom. The prostate gland had not the globular shape usually observed; it was, however, somewhat enlarged, firmer than natural, and so flattened, that the finger could not reach the bladder. When this part is in a state of simple chronic enlargement, we cannot reasonably refuse our patients the chance of an operation, should there exist no other unfavourable combination. I have twice operated with success in more extensive enlargements of the prostate; and although the wound did not heal so speedily as when no such disease existed, the result was still sufficiently fortunate to justify the operation, and in one of the cases, the gland diminished considerably afterwards. The existence of several calculi in the bladder would, by requiring the frequent introduction of the forceps for their removal, somewhat protract the operation, but this could afford no ground of apprehension, it being acknowledged that there is more danger to be dreaded from the extraction of one large, than of many small calculi.

The patient was subjected to the usual treatment for a few days. He was repeatedly purged with castor oil and enemata, and an immense quantity of scybala evacuated, but without any marked reduction of the flatulent distention of the belly; the bladder was soothed by the warm bath, anodyne clysters, and frequent doses of supercarbonas sodæ.

On the 29th, the lateral operation was performed, by running the narrow probe-pointed knife along the groove of the

curved staff, and six entire, and three broken calculi extracted, the largest being oval, and about the size of a walnut. From the enlargement of the prostate, and depth of the perinæum, some difficulty was experienced in feeling with the finger the whole internal surface of the bladder, to ascertain that all the calculi were extracted. To remove all doubts in such cases, the introduction of a sound, either by the penis or the wound, should not be neglected, as it affords the most correct means of ascertaining that this necessary object has been effected. The prostate gland felt hard, almost like cartilage, but when the finger or forceps were withdrawn, it still retained so much elasticity, as to close the wound into the bladder as if by a valve. Three arteries were observed to bleed freely, two superficial branches were tied, and a large deeper-seated vessel, evidently the transversalis perinæi, threw out its blood per saltum, and in considerable quantity. This artery was much enlarged, but from its deep situation, and its being divided near to the ramus of the ischium, it was found impossible to secure it by ligature; it was, however, easily commanded by pressure. An elastic tube was introduced into the bladder; the patient was placed on his back in bed, the thighs separated, to facilitate the escape of blood, and he was lightly covered, and kept cool. On visiting him at 8 P. M. the urine was passing freely along the tube, and he was free of pain, except when occasionally attacked by a strong bearing-down sensation, accompanied with a desire to void urine and go to stool, which being similar to what he experienced before the operation, was ascribed to flatus. The finger was passed into the bladder, which was found empty. Pulse 72, soft. Complained of thirst, and slight rigors. *Anodyne enema.*

30th. Has had some sleep during the night, and feels easy, except when affected at intervals with severe spasmodic pains in the abdomen. In the evening, as he had pain on pressure above the pubes, and his pulse was accelerated, 24 leeches were applied to the hypogastrium, and a *large enema* ordered, which dislodged a quantity of hardened fæces.

31st. Continues to complain of violent expulsive efforts, and of fixed pain above the pubes. Pulse 74—tongue clean—no stool. The tube was withdrawn. *Castor oil. Leeches to the hypogastrium. Anodyne enema at bedtime.*

1st February. Six stools from the oil, but continues to complain of fixed pain in the hypogastrium, and of general uneasiness in the abdomen from flatulence. *Leeches and anodyne repeated.* A large elastic tube was introduced for several inches into the rectum, to facilitate the escape of air from the bowels, but only a small quantity was discharged. This practice is

sometimes successfully adopted, when the natural peristaltic action of the intestines has been impaired by flatulent distention; but if the gas is confined in the small, or high up in the large, intestines, beyond the reach of the tube, no benefit can be expected from its introduction.

2d. Passed a comfortable night; but an hour before the visit had a smart rigor, followed by increase of pain, thirst, and nausea. Pulse 84, small and sharp. Tongue dry and furred. *Calomel and opium. Fomentations. V. S. to ζ xij.* Blood cupped and buffy.

3d. Pain on pressure, swelling, and tenesmus greatly abated. Voids his urine through the wound at intervals, by contraction of the bladder. Pulse 72, soft and compressible.

5th. Flatulence and tenesmus increased, coming on in frequent and violent paroxysms, but with little or no pain on pressure. Has had several stools, containing scybala, accompanied with excruciating pain during their evacuation. Complains of the feeling of a large hard body, fixed in the upper part of the rectum, which excites violent expulsive efforts. Pulse 70, rather weak. Tongue dry and furred. Wound sloughy. *Dose of castor oil, and anodyne enema after its operation.* These symptoms appeared to depend on abdominal irritation, the consequence of an impacted state of the colon; but did this condition of the bowels afford an adequate explanation of the violent bearing-down efforts, which had annoyed him more or less for a whole year?

From this report till the 10th, there was little change in the symptoms. The spasmodic pains affected him violently, and the wound was lined with an ash-grey tenacious secretion. The stools still contained scybala; his countenance was pale, and had an exhausted expression, on which account purgatives were more sparingly administered, and the bowels unloaded by frequent and copious injections, thrown freely up by the patent enema syringe.

13th. Paroxysms of pain continue unabated, but the stools are now of a natural colour and consistence. Pulse 68. *Anodyne enema. Beef tea. Arrow root.*

15th. Had a violent attack of pain this morning, chiefly referred to the rectum, and he describes it as exactly similar to what he experienced on going to stool previous to the operation. The finger was passed into the rectum, but neither hardened faeces, nor any other obstruction, was discovered. As the bowels were now acting more freely, and the flatulence had diminished, and as he complained of burning heat about the prostate and bladder, it was judged proper to soothe the recto-vesical irritation by a pill every six hours, containing

Extract. hyosciami gr. ij. and camphor gr. ij. Warm bath. Anodyne enemata. An occasional opium suppository.

For the following three days, the attacks of pain were less violent, and he appeared to improve in strength and spirits; he still, however, complained of severe straining at stool, from the feeling of a foreign body in the gut, which he was ineffectually excited to expel. On the 20th, his appearance was less languid; his pulse was about 80, and of moderate strength, the tongue clean and moist, and the wound florid and granulating. The thighs were secured together, to accelerate its closure, and the urine passed afterwards by the penis. His appetite was improving; and although at this period he was considerably exhausted, there existed no prominent indication of a suddenly fatal result. On the morning of the 22d, he was seen by the nurse at six o'clock in his usual state, and when visited again at eight, he was found dead in bed.

Dissection. On opening the abdomen, a hard tumour was discovered lying over the last lumbar vertebræ, between the laminae of the mesentery, near the inferior part of the ilium, and which pressed on the sigmoid flexure of the colon, where it is about to become rectum. The surrounding mesentery exhibited no thickened or diseased appearance, and only adhered to the surface of the tumour by loose cellular attachments, easily destroyed by the finger. It was about the size of a small lemon, of a hard bony feeling and appearance, and very irregular shape. When sawn through, the exterior part was evidently bone, and varied in thickness at different parts from a quarter to half an inch, while the centre was filled by a yellowish white substance, in appearance and consistence like adipocire, intersected in various directions by spiculæ of bone. Two small cavities in the centre were lined with innumerable transparent, needle-like crystals, which, however, disappeared after the tumour was dried, and before I had an opportunity of submitting them to chemical analysis. The mucous coat of the bladder was considerably thickened, of a dark vascular plaited appearance, especially about the neck, and coated by a mucopurulent secretion. There was a tumour at the fundus about the size of a small marble, containing purulent matter, which issued into the cavity of the bladder, through two fistulous openings in the mucous coat at that part. The prostate gland was enlarged, and firmer in texture than natural, but without the fibrous appearance of scirrhus. The mucous coat of the rectum was highly inflamed, and there was considerable induration and thickening of parts between this gut and the base of the bladder.

This dissection afforded a satisfactory explanation of what

had been previously only matter of speculation. The long-continued and painful tenesmus was obviously to be referred to the pressure of the osseous tumour, on the commencement of the rectum, producing an impediment to the regular discharge of the fæces, tympanitic swelling of the abdomen, and great irritation. From the situation and connexions of this tumour, it would appear, that when the diaphragm and abdominal muscles were called into action in expelling the fæces, it would be forced back on the termination of the colon, by the pressure of the surrounding parts, and not only impede the fæculent evacuations, but also, from its extreme hardness and inequality, irritate and injure the bowel in no small degree.

In scrofulous habits, the mesenteric glands are sometimes filled with calcareous matter, but bony depositions are stated by Dr. Baillie (*Morbid Anatomy*, p. 134), to be of rare occurrence. The few recorded cases of this disorganization, which I have had an opportunity of examining, appear to have originated in disease of the glands of the mesentery, and to have been complicated with organic disease of the bowels. Dr. Donald Monro narrates a case in the *Medical Transactions* (vol. ii. p. 361), in which all the mesenteric glands, varying in size from a pea to a walnut, were hardened and ossified. They were not, however, as in the case of Cameron, made up of one large firm osseous tumour, but, "like spongy carious bones, they were composed of a number of small pieces, joined together by membranes."

Cameron's death cannot be attributed to the operation; he lived for 23 days after its performance; and although the bladder was partially diseased, yet he was exhausted and carried off by an unusual and unexpected occurrence. It was a combination that could not have been detected during life, otherwise no operation would have been performed; and although it had been discovered, it was irremediable. The flatulent distention of the belly of course prevented its being recognized by any external examination, and it was too high up to be reached by the finger in the rectum.

I am indebted to Professor Thomson for the following analysis of the calculi and tumour.

The calculi consist chiefly of uric acid. But there is present in them also a small quantity of matter, which has a light yellow colour, and dissolves with ease both in nitric acid and in caustic potash. But it did not crystallize with either, nor form the pink coloured matter with nitric acid. It may be new; but the quantity upon which I experimented did not admit any farther trials. The bone is very solid externally, and is surrounded by a periosteum in the usual manner. It

becomes more and more porous towards the centre. The specific gravity of the whole mass is 1.219. But it was so full of cavities, that this specific gravity is doubtless below the truth. The matter in the middle of the bone is soft, but compact. It cuts like cheese, and is partly buff coloured, partly white. It was not in the least soluble in boiling alcohol, and therefore was not adipocire. It was insoluble in acetic and muriatic acids, and therefore was neither muscular nor ligament. But when digested in caustic potash, a little fat was separated. It melted when heated, and behaved like cartilage.

36, Kent-street, 8th March, 1828.

VI. *Cure of Stammering.*

A DEFECT so common and so disagreeable as stammering has not altogether escaped the notice of medical men; but hitherto, we believe, no very certain remedy for it has been made known. It has been perhaps too much left to teachers, who, although they have doubtless succeeded in removing the defect in individual instances, were, from their ignorance of physiology, unlikely to fall upon any plan of cure that should be generally applicable; or, if they did discover by accident such a plan, being unacquainted with the principles on which it proceeded, they would not be well qualified to communicate it to others.

Dr. M'Cormac has announced a theory of the cause of stammering, and proposed a method of cure, which seem highly feasible, and deserve the attention of those who are interested in the subject.*

The cause of stammering he conceives to be attempting to speak while the lungs are nearly exhausted of air. When little or no air passing backwards or forwards through the vibrating chink of the windpipe, voice of any tone cannot be uttered.

“I make use,” says Dr. M'Cormac, “of the expression *backwards* or *forwards*, because we can speak or produce words or voice, not only when the air is going out of the chest, but when it is coming in; but in the latter case it is much more difficult, and occasionally does actually produce stuttering, when the person endeavours to speak during an attempt to draw in breath when the lungs are full.”

The principal causes of this habit of attempting to speak while the lungs are exhausted, are, he conceives, undue haste,

* A Treatise on the Cause and Cure of Hesitation of Speech, or Stammering. By Henry M'Cormac, M. D. Post 8vo. pp. 112. London, 1828.

and imitation; and the cure, as might be anticipated, consists in being careful always to inhale a sufficient quantity of air into the lungs, before attempting to speak, and proceeding at first to pronounce very slowly, till the former bad habit is broken off. When the patient stutters very much, the practice of respiration, or drawing long breaths, and then expelling them again, and any exercise that may strengthen the lungs, are recommended as preliminaries.

“ The main thing to be attended to, and which, in fact, is the groundwork of the whole system of cure, is, to expire the breath strongly each time when attempting to speak, the lungs being previously filled to the utmost.” . . . “ As it will be some time before the patient can husband the air of his expirations, so as to say all he would wish in one breath, he must not commence by repeating sentences during each exhalation, but only simple monosyllabic sounds of any kind, no matter in what language.” . . . “ During the intervals, conversation of any kind should be sedulously shunned, until the cure is somewhat advanced.”

Deliberate pronunciation is the common recommendation to those who wish to be freed from stammering, and has in many instances, we believe, been successful, without its mode of acting being at all thought of or understood.

The plan we have described proceeds upon principles intelligible to all, and may therefore without difficulty be put to the test of experience.

VII. *Report of Cases treated in the Surgical Wards of the Glasgow Royal Infirmary, from 1st November, 1827, till 1st May, 1828.* By A. D. ANDERSON, M. D. Senior Surgeon &c.

Abscess,	15	Brought forward,	80
Artificial anus,	1	Fistula lachrymalis,	1
Bite of dog,	2	Fracture,	45
Burn and scald,	15	Head, injury of,	3
Carcinoma mammæ,	2	Hæmorrhoids,	4
— scroti,	1	Hermaphroditism,	1
Caries,	1	Hernia, strangulated,	2
Conjunctivitis,	5	— umbilical,	1
— strumosa,	2	Hydrocele,	3
— granulosa,	2	Hypopion,	2
Contusion,	9	Iritis,	2
Dislocation,	4	Lupus,	1
Emphysema,	2	Necrosis,	9
Erysipelas, &c.	11	Ophthalmia interna,	1
Exophthalmos,	1	Onychia maligna,	1
Exostosis,	2	Onyx,	2
Fistula in ano,	5	Phlegmon,	7
Carry forward,	80	Carry forward,	165

	Brought forward, 165		Brought forward, 184
Phymosis,	2	Stricture,	3
Polypus nasi,	1	Synovitis,	6
Prolapsus uteri,	1	Tumour,	10
Sarcoccele,	2	Ulcer,	26
Spine, injury of,	5	Ulceration of cartilages,	8
Sphacelas,	3	Urinary abscess,	1
Sprain,	5	Wound,	7
	<hr/>		<hr/>
	Carry forward, 184		245*

Operations.

		Brought forward, 20	
Amputation, near the shoulder,	1	Extirpation of testicle,	1
———— of fingers,	3	Fistula in ano,	3
———— of thigh,	3	Fistula lachrymalis,	1
———— of leg,	1	Hæmorrhoids, excision of,	1
———— of part of foot,	1	Hernia, femoral,	1
Amputation of toes,	2	Hydrocele, injection of,	1
Extirpation of mamma,	3	———— puncture of,	1
———— tumour,	4	Ligature of brachial artery,	1
———— eye,	1	Phymosis,	1
———— cancer scroti,	1		
	<hr/>		<hr/>
	Carry forward, 20		31

There were 16 deaths, viz. three soon after admission, from severe accidents; two from extensive burns; one from peritonitis, following the operation for fistula in ano; one from erysipelas of the leg and thigh, in an old debilitated subject; one from pleuritis, occurring in a patient who, previous to admission, had lost almost the whole integuments of the arm by diffuse cellular inflammation; one from diffuse cellular inflammation, deep suppuration, and sloughing of the arm; one from the same cause, followed by gangrene of the side, &c.; one from fungous exostosis of the ilium; one from strangulated femoral hernia after the operation; one from extirpation of a tumour from the neck; one from fracture of the thigh, and previous fracture at the hip, in an old paralytic man; one from amputation of part of the foot, &c.; and one from a large ulcer on the foot and leg, softening of the bones, diseased liver, and dropsy.

Four were dismissed with advice, six by desire, two incurable, eight relieved, three irregular, three remitted to the physician, 44 remained under treatment, the rest were cured.

Abscess. William Walker, æt. 44, weaver, admitted 31st December, with constant pain about the right hip-joint, aggravated by walking, and producing lameness. Limbs equal in

* This table includes only one-half of the surgical patients during the period stated. The remainder were treated by my colleague Dr. J. Couper.

I am indebted to Dr. Craig, lately house surgeon to the infirmary, for much able assistance in the treatment of the cases referred to.

length, and no increase of pain when the articulating surfaces were pressed together. A firm elastic tumour, the size of a hen's egg, in the groin, and a softer, obscurely fluctuating swelling behind the trochanter major. Tumour in groin communicated an impulse on coughing, and could be reduced in size by pressure, which also occasioned some fulness above Poupart's ligament. Pain of four years' duration; swellings first observed about ten months before.

On the 9th January, the fluctuation was distinct in both tumours; the posterior had increased in size, and firm pressure on either rendered the other prominent and tense. Two *moxas* were burnt on each tumour so as to form sloughs. On the 17th, the sloughs were separating, and the anterior tumour was obviously diminished in size. On the 26th, there was still some fulness both in the hip and groin, but no remains of fluctuation. On the 2d February, no return of fluctuation had taken place; but as there was still some prominence both in the groin and buttock, the moxa was repeated, and the former sores kept open with savine ointment. On the 10th, the pain and swelling being nearly gone, he was dismissed, but desired to keep the sores open.

A complete absorption of the fluid was thus effected by the moxa, and there was reason to suppose that the cure was in other respects perfect. Shortly after dismissal, however, in consequence of walking, the pain of hip and loins returned severely, and extended down the posterior part of the thigh.

He was re-admitted on the 23d February, and as there appeared to be still some deep-seated disease about the hip, the subsequent treatment consisted chiefly in rest, the re-application of the moxa posteriorly, so as to increase the discharge, and the use of tonic medicines and diet. The fluctuations did not return, and it is on this point alone that I conceive the case to be worthy of notice.

I have used the *moxa* in a great variety of cases; in diseases of joints, injuries and diseases of the spine, local paralyses, tumours, abscesses, hydrocele, &c. It is a very powerful excitant, and frequently succeeds when other remedies have been tried in vain. None of my patients have objected to its use, several of them have requested its repetition, and others, who had heard of its good effects, have presented themselves as out-patients, in order to have it applied.

Most of the other abscesses and sinuses were unimportant. The common treatment of the latter, by stimulating injections, pressure, &c. frequently failed to excite the adhesive inflammation. Blisters were much more effectual.

Artificial Anus. Mary Stewart, admitted 10th November.

In the left groin, there was a very large sore, extending from the spine of the ilium to the symphysis pubis. It was about three inches broad, passing above Poupart's ligament, of a ragged, irregular, and sloughy appearance, and having a sinus running by the side of the labium down towards the perinæum, from which much matter could be pressed. In the centre of the sore, there was a round firm substance, formed by a portion of prolapsed gut, and immediately above this an opening, through which all the fæces passed. The parts were seen moving from the pulsations of the femoral artery. Health much impaired, hectic, and the body emaciated to an extreme degree. Pulse quick, and so very feeble, as not to be reckoned. Feet cold. Had been subject to femoral hernia for twelve months. A month before admission, it appears to have been strangulated, and after eight days it sloughed, since which, all the fæces had passed through the wound.

This case was very unpromising, and from the excessive debility, it seemed almost hopeless. A nourishing diet, with a liberal allowance of wine and brandy, produced little improvement. The appearance of the discharges soon showed that her debility chiefly arose from inanition, owing to the artificial opening having taken place in a part of the gut where the process of assimilation was still incomplete. With the double purpose, therefore, of affording nourishment, and dilating the lower intestines, I directed the use of large beef-tea enemata three times a-day.

The next object was to prevent the escape of the contents of the gut, which not only kept up the debility, but produced sloughing of the sore, and hindered it from healing. The aperture admitted the finger, by which it was ascertained that only one side of the gut had been destroyed, and that the other side formed a continuous surface towards the abdomen. This case, therefore, did not require the application of the ingenious instrument of Baron Dupuytren. Plugging the opening with various conical shaped sponges was first tried; but she could not bear the degree of pressure necessary to retain them *in situ*. Recourse was therefore had to a long cylindrical tent of lint firmly rolled up. This was pushed deeply into the gut, so as completely to fill the external aperture, and in this way nearly to maintain itself in position. Over this graduated compresses were placed, and the whole supported by a light truss. She could not wear any kind of truss, however, more than a few hours at a time, and firm bandaging was substituted for it.

The day after the commencement of this plan, flatus was

discharged by the rectum, and this was succeeded by regular and natural evacuations, which continued throughout the treatment. Her improvement in health was now rapid, and by the end of December, the sore had contracted to the size of a shilling, under the application of the chloride of lime lotion, and nitrate of silver in substance.

Still the tent could not be steadily retained, without resting its extremity on the posterior surface of the gut, which more or less obstructed the passage, and forced some of the fluid fæces outwards by the wound, thus hindering the cicatrization of the sore. An attempt was therefore made to construct an instrument, which might at once fill the external opening, and by a spring, or elastic loop pushed through it, should distend the circle of the gut, and allow the fæces to pass onwards to the rectum. This attempt, however, failed, owing to the difficulty of obtaining a substance of proper elasticity; and on the 16th January, the opening was freely touched with the actual cautery. All discharge ceased for several days, and after the slough separated, considerable contraction took place. The cautery was frequently and freely repeated from time to time during her stay in the house, until the aperture had diminished to a very small point. The discharge was now only occasional, and so trifling as to give little inconvenience. Her health and strength were perfectly restored; and as she was desirous to go home, I dismissed her at the end of April, without any further attempt at a complete closure of this minute fistula, which, I believe, becomes the more difficult to be effected the smaller it is.

The actual cautery is very serviceable in many cases. I have cured several fistulæ of the urethra in this way, which had resisted every other means; and I lately saw a patient, from whom I removed a very large fungus of the antrum five years ago. Her disease has not returned, solely, I am convinced, owing to the free application of the hot iron. In hæmorrhagic oozings from sores or wounds, by which debilitated patients are frequently cut off, the eschar formed in this way is very effectual; and in obstinate bleeding from leech bites, especially in restless children, where pressure is difficult, the point of a red hot wire will at once check the discharge.

The objection to this remedy on account of pain, when compared to other caustics, has been greatly exaggerated, and is by no means verified by the evidence of the patients themselves. The pain is no doubt very acute, but it is transient, and I have never known any of the protracted suffering or subsequent inflammation, which are so frequently seen after the more common caustics. It changes the character of obsti-

nate sores, whether irritable or indolent, and excites in them a new, and generally a healing action. Of this there cannot be a better example than the onychia maligna, in almost every stage of which it may be said to be quite a specific.

Burns. I refer to the last number of this Journal for the treatment by cotton adopted in these cases.

Dislocations. William Cummin, æt. 47, wright, admitted 24th November, having fallen down a stair that morning, and alighted on the point of the right shoulder, by which the scapular end of the clavicle was dislocated upwards. This case was sent to the house as a dislocation of the humerus, and under this supposition attempts had been made at reduction. The end of the clavicle projecting about two inches above the acromion, gave the joint very much the appearance of that injury at a little distance; but the nature of the case was easily ascertained on examination. A pad in the axilla, the figure of 8 bandage, and over it Sir A. Cooper's apparatus, succeeded in retaining the bone in its place for the first two days. The patient was a hard drinker; and on the third day he got slightly delirious, tore off the bandages, and left the hospital.

In some cases of fracture of the clavicle, there is little or no tendency to displacement after reduction, and in others, no bandages nor apparatus will prevent more or less mal-position. This seems to depend on the degree of injury done to the connecting ligaments, particularly those between the coracoid process and the clavicle. Dislocations of this bone are always difficult to manage. The bandage of M. Brasdor, which is represented in the 5th vol. of the *Mém. de l'Académie de Chirurgie*, and is nearly the same in principle with that of Sir A. Cooper, is probably the best.

But most bandages get loose, or they abrade the skin, and stop the circulation. Confinement on the back for a fortnight, with a pad in the axilla, and the elbow advanced and bound to the thorax, has succeeded better in my practice than any other plan. A narrow firm pillow placed between the scapulae will likewise conduce to throw back the shoulders, without exciting any opposing action in the anterior muscles.

One of the dislocations of the shoulder was accompanied with a curious fracture. The humerus in this case had been dislocated downwards, and was easily reduced by placing the heel in the axilla, and making extension from the wrist. The man died next day from severe fractures of the leg and thigh, and from internal effusions of blood. On examining the joint, it was found that that portion of the larger tubercle of the humerus, into which the supra spinatus muscle is inserted, had been fractured, and remained attached to the tendon at

the upper edge of the glenoid cavity, the muscle having probably been in strong action when the dislocation happened. This detached piece was partly within, and partly exterior to the capsular ligament, and if the man had lived, it would have been interesting to have ascertained whether union would have taken place. I believe it would have united.

Erysipelas, &c. There were fewer cases of erysipelas, supervening in patients admitted for other diseases, than I have ever before observed. There were also fewer of the other *hospital diseases*, under which term I have been accustomed to include a great variety of inflammatory attacks, both external and internal; affecting sores, and remote from them. Many of the causes of these attacks are involved in considerable obscurity. I am inclined to attribute much to regulation of diet, cleanliness both personal and general, and ventilation. But there is another cause which I must not omit to notice. This is crowding, the direct operation of which in generating many diseases not generally attributed to hospital causes, does not in my observation admit of a doubt. This I have noticed amongst the medical patients; but it is still more conspicuous where there are a great number of sores discharging copiously. I have paid some attention to this subject, and I have refused to admit patients who required to be laid on additional beds on the floor. Whenever, also, there was any appearance of hospital disease, I have endeavoured to diminish the numbers as much as possible. The beneficial effects have corresponded very nearly with the practicability of effecting this and other objects connected with this important subject, into which I cannot here enter.

In the common acute erysipelas of the skin, superficial incisions were sometimes practised, and were always effectual. But the free use of leeches, cold or tepid evaporating lotions, and salts with tartrate of antimony internally, seldom failed to check the disease.

In the erysipelas serpens of debilitated patients, which sometimes extends gradually over the whole surface, a few doses of calomel and antimony, followed by the sulphate of quina and wine, proved very successful. When this species of erysipelas was confined to a limb, or otherwise circumscribed, I have several times succeeded in checking it by the application of a narrow circle of blistering plaster on the surrounding sound skin.

The cases of diffuse cellular, and subfascial inflammation, required a very different treatment. In the early stage of these affections, leeching sometimes succeeded; but except in cases occurring in the house, it seldom happened that an early enough opportunity was afforded for dependance on this prac-

tice. There is a peculiar hardness and tension, as well as acute pain, distinguishing these cases from the superficial erysipelas, and it is by immediately relieving this state that the practice of incisions excels every other. The first case in which I tried this plan was in February, 1824. The incisions were from six to eight inches long, and penetrated the fascia. The relief afforded was immediate, and I have continued to adopt the same course in every case requiring it since that time.

The following case of subfascial inflammation is given, chiefly because it was unsuccessful. The want of success I attribute to the deep seat of the disease, and to the incisions having been too superficial, and too late to prevent suppuration; but also to the effects of the ligature of the brachial artery, which no doubt occasioned the sphacelas of the two fingers, and probably in this way increased the debility, which at last proved fatal. The primary object in making such incisions should be to prevent suppuration, for it is only in this way that the disease can be arrested. The discharge of blood and serum is generally profuse, and I have often been obliged to apply pressure, or to secure the divided vessels by ligature; but it is from this very discharge that the relief is obtained, and if we are to object to the use of the scalpel in such cases, from a dread of hæmorrhage, we might as well object to it in every other surgical case whatever.

Mary Drysdale, æt. 35, admitted 1st March, having sprained the left wrist, while lifting a heavy weight eight days before. The two inferior thirds of the arm were much swollen, particularly on its anterior surface. Skin of a bright red colour, very tense, painful, and glossy. The swelling also extended to the hand, the back of which was œdematous. The pain was so severe, that she had not slept for several days. Pulse 110. Tongue furred. Bowels bound. Skin hot. Headach and anxiety of countenance.

An incision was made on the palmar aspect of the forearm, and she had a purgative. On the 2d, another incision was made in the direction of the ulna. Both incisions bled freely. On the 3d, the arm was easier, but she had not obtained the usual relief. The tension was less, however, and as the heat and pain were chiefly about the elbow, 12 leeches were applied, followed by a saturnine lotion. On the 4th, the whole arm was less inflamed, but the back of the hand had become more tense and painful. On the 6th, some suppuration had taken place in the palm, and about the thumb and little finger, where incisions were made, and a bandage applied. On the 7th, so little benefit seemed to have arisen from the incisions,

that I suspected they had not penetrated to the seat of the disease, which seemed to be beneath the aponeurosis of the deep flexor muscles.

By careful examination, I thought I could perceive an obscure fluctuation; and after penetrating very deeply midway between the wrist and elbow, a quantity of purulent matter, mixed with sloughs, was discharged. By this incision, a large artery was divided, and bled profusely from beneath the fascia, which was immediately distended. Pressure was of little use, and my first impulse was to extend the incision, and endeavour to secure the vessel at the wound. The highly vascular state of the parts, however, the depth of the vessel, and the weak state of the patient, rendered it unadvisable to risk a further loss of blood from the division of other vessels. The humeral artery was therefore immediately secured by ligature above the elbow. The incision was afterwards enlarged for the free discharge of pus and clots.

The suppuration became profuse, and the ring and little finger, which did not at first seem to have suffered from the ligature of the artery, sphacelated, and were removed. The thumb also appeared livid for a few days, but gradually recovered, and she was altogether so much better, under the free use of quina, wine, and nourishing diet, that I expected a complete recovery. But her strength had only been artificially kept up, and on the night of the 14th, the pulse became imperceptible, the stimuli lost effect, and she died next day.

The ligature had separated from the humeral artery, which was shut, and the external wound had nearly cicatrized. The vessel which had been opened in the forearm could not be discovered; but from the situation and depth of the incision, it was most probably the inter-osseous. The muscles and soft parts had put on a healthy appearance, and she seemed to have died at last from the debility induced by the profuse discharge.

Exophthalmos. Mrs. Craig, æt. 24, admitted 5th January, at which time the right eyeball was almost completely protruded out of the orbit, attended with ectropion and chemosis. Cornea ulcerated and muddy. Pupil immovably dilated, and vision lost. Constant severe pain in the bones of the orbit and right side of the head, rendered more acute by pressure. Some rheumatic pain of knees. Health greatly impaired, but better since her delivery eight weeks before admission. Vision of this eye became dim 18 months, and she lost the sight completely four months before. Pain of head of 12 months, and prominence of eye of eight weeks' standing. Had some discharge of yellow fluid from the right ear, about the

time the sight was lost, but not since. Mouth affected by pills she had taken for the last five or six weeks.

The symptoms in this case led me to suspect syphilis, but she denied it; and as the mercury seemed to have had little effect, but that of increasing debility, I suspended its use, and endeavoured to procure relief from other medicines and external applications, chiefly opiates and narcotics. These did not succeed. I then evacuated the humours of the lost eye, but this also was ineffectual; and having obtained the sanction of a consultation, I extirpated that organ with the knife. Some inflammation and fulness in the right nostril induced me to suppose it likely there might be found a fungus or other tumour pushing upwards from the antrum to the orbit. A tumour about the size of a hazel nut was discovered in the floor of the orbit, but it was solid, nodulated, and bony. The pressure of this growth upon the eye had obviously occasioned the pain and protrusion, but as it was firmly fixed, and could not now exert any injurious pressure, it was not considered prudent to attempt its removal.

The relief from pain was remarkable after this operation. Plummer's pill, and decoction of sarsaparilla, were now used for several weeks, during which time she got almost quite well; but whether this proceeded from the removal of the eye, the discharge which succeeded it, or the medicine, I am unable to decide. I believe that all of these were useful, and it was my intention to have advised the insertion of a pea issue in the neck, and a continuance of the medicine, but she left the house on the 1st March, without receiving these instructions. At that time, her health was good, and there was no appearance of increased growth in the orbit.

Exostosis. John Henderson, æt. 39, warper, admitted 8th September. About six months before, without evident cause, began to have occasional darting pains about the sacrum, and left hip-joint. These gradually increased, and extended to the knee and ankle. After three months, he became unable to walk, from the severity of the pain, particularly in the groin, and inside of the thigh. Some firm elastic swelling was now first observed between the sacrum and trochanter major. He was cupped, blistered, and had a caustic issue on the hip, but the disease did not yield. When admitted, the left hip was greatly swelled, but natural in shape. The swelling reached the crest of the ilium, the median line of the sacrum, and half way down the thigh. The affected limb seemed half an inch elongated, owing obviously to the inclination of the pelvis to that side. Was unable to rest on the limb from stitfness and pain, but had no pain from pressure

of the articular surfaces together, or pressure on the trochanter. Thigh bent forward, and he could not extend it fully. Health fast giving way; feet œdematous; urine scanty and high coloured. Body emaciated. He remained in the house till he died, which was on the 22d November. During that time, the swelling of the hip and left side of the pelvis increased steadily, he became hectic, and affected with general anasarca, and sunk gradually with little increase of pain, and with no visceral disease.

Various diuretic, mercurial, and other medicines were used, but without effect. Some doubt having been expressed at a consultation, as to whether there was matter behind the trochanter, an incision was made in this situation, but none was found; and lastly, the hip was rubbed with the ointment of the hydriodate of potass.

The following were the morbid appearances. The hip was about double its natural size. The bones forming the left side of the pelvis, with the exception of the sacrum, were surrounded by a large quantity of firm slightly elastic substance, easily cut, and having a semi-cartilaginous consistence. The cut surface presented an almost uniformly yellowish white appearance. On the dorsum ilii, this substance was from five to seven inches in thickness. The glutæi muscles were much diminished in size, and more superficial than the tumour. On the internal surface of the pelvis, this substance was from three to four inches in thickness, and occupied the situations of the iliacus internus, psoæ, levator ani, and obturator internus muscles, no traces of which remained, except a very small portion of the iliacus internus, which was near the crest of the ilium. It also arose from the anterior part of the os pubis, and the femoral artery was seen unaltered in structure, passing through its substance. It arose likewise from the bones about the foramen ovale externally, and passed an inch or two down the femur, but did not adhere to the periosteum of that bone.

Those parts of the tumour which were deep-seated, or near the periosteum, were traversed by spiculæ of new bone. On the dorsum ilii, behind the acetabulum, this new bone was from half an inch to an inch in thickness. In all the other parts there was only a small quantity of new bone formed near the periosteum. The consistence of the tumour was firmer the nearer it was to the old bone, and firmer on the dorsum ilii than on the internal surface of the pelvis. The hip-joint was unaffected. The lower half of the body was very œdematous, especially the affected limb. The thoracic and abdominal viscera were healthy.

This appears to have been the *fungous exostosis* described by Sir A. Cooper in his *Surgical Essays*. I shall not object to the name, as it is of little consequence; but I do not think that this, like other exostoses, would have been converted into bone, even if it had been much less rapid in its growth and termination. I believe it to have been originally a disease of the periosteum alone, and that the spiculæ of bone which were found, do not constitute an essential character of the complaint. I have in my possession a finger which I amputated, on account of a tumour of the same description with this, and although there are a few minute spiculæ at the point from which it took its origin, the whole tumour, *which was of sixteen years' standing*, and as large as a hen's egg, is still free of bony structure.

Fractures. Five of the fractures were at the neck of the femur. Of these, four possessed the symptoms usually supposed to denote the fracture within the capsular ligament, and one was ascertained to be exterior to the joint. Of the four within the capsular ligament, two were put up on the double inclined plane, one with Desault's splints, and one with Hagedorn's apparatus.

In none of these cases was it found practicable to maintain the necessary degree of extension for the length of time said to be requisite to procure re-union. One was remarkable for the great difficulty of extending the limb, so as to discover crepitus. In this case, sloughing took place at the ankle and ham, and in all, either from sloughing of the nates or limb, or from constitutional causes, the bandages, which had been most carefully applied, required to be removed, and the limb placed on pillows, without re-union having taken place. More or less shortening of the limb, and lameness followed.

The case in which the fracture was exterior to the capsular ligament, was put up in the straight position, with Desault's splints, and a firm union took place in six weeks, although the patient was 73 years of age.

Without entering on the controversy regarding the re-union of fractures within the capsular ligament, I may state, that I have dissected several cases of this kind, at different periods after the injury, in which I found no deposition of callus, but rather an absorption of bone; whilst in other cases, exterior to the joint, I have uniformly found a free deposit of new bone. The extreme difficulty of maintaining the necessary extension, and preventing the motions of the pelvis for so great a length of time, is acknowledged by the advocates of re-union, even under the most favourable circumstances of private practice. But the feeble constitutions of the patients,

and the debilitating effects of protracted confinement in a public hospital, tend greatly to increase this difficulty. I am convinced, that if a given number of persons, above 60 years of age, without any fractures, but with constitutions such as poor persons at this age generally possess, were laid in bed in a crowded hospital, and had their limbs, and almost their whole bodies immovably fixed in one position for the number of months required by the advocates of successful re-union, a great majority of them would either sink under the treatment, or require the machinery to be removed, from local excoriations or sloughs, or from constitutional disturbance. By placing the limb, however, on a slightly double inclined plane, firmly supported by pillows, and attending to the health for a few weeks, we shall generally enable our patients to walk out of hospital with the assistance of a crutch, and occasionally without even the need of a stick.

Almost all the other fractures were treated with the long, slightly excavated, wooden splints, and in the extended position. The exceptions to this plan have arisen from peculiarities either in the direction or in the situation of the fractures, or from other necessary causes.

Thus, James Gillespie had a fracture of the femur, with previous ankylosis of the knee-joint. This was treated on Mr. Pott's plan, and united without deformity in six weeks.

Adam Aitchison, æt. 74, admitted 29th March, eight days after having fractured the right thigh obliquely in its middle third, by falling out of bed, to which he had been confined for two years, by paralysis and general debility. This was a puzzling case, for the fractured ends could be brought in apposition by extension, but still the limb was about $2\frac{1}{2}$ inches shorter than its fellow. The knee was advanced, and inclined towards the opposite limb, the foot inverted, the buttock rounded, and the trochanter major seemed two inches higher on the dorsum ilii than the opposite. There was also some unusual thickening about the trochanter. The limb could not be rotated outward; but when this was attempted, some motion was felt at the upper part of the femur.

It appeared, that about two years before, he had fallen on the right trochanter, since which, the limb had been shortened, and he had not been able to walk; but this he attributed to a shock of palsy at that time. The hands and head were very tremulous, but he could move the sound limb.

Here were many of the characters of dislocation on the dorsum ilii; but after examination and attention to various particulars in the indistinct history he gave, it was judged to be an old fracture of the cervix, with shortening and deformity. The recent fracture was put in the straight splints, but slough-

ing took place on the nates, and it was found necessary to lay him on his side. By this the back got well; but he lost strength gradually, and died on the 24th April. The following were the appearances of the parts, which are still in my possession; they exhibit the resources of nature in a very striking point of view.

There was an ununited fracture of the neck of the femur, within the capsular ligament. The fractured surfaces were smooth, and the neck of the bone seemed to be almost completely absorbed. There was much ossific matter formed between the trochanter major and minor, and a large process of solid bone extended from this to the junction of the rami of the os ischii and os pubis, where its end rested, and a new joint had been formed, admitting of limited motion. Whether this process was completely new bone, or partly formed by the neck of the femur displaced and altered in form, may be matter of doubt. The recent fracture was ununited, very oblique and overlapping, but there was bony formation around it.

Hugh Kenna had a fracture of the olecranon, which was put up in the usual way, and united by bone in little more than four weeks. This is the second case of bony union of the olecranon I have had within the last year; but in both the subsequent motion was for some time so painful and imperfect, that I consider the ligamentous union to be preferable.

Mrs. Nelson had a recent fracture of the neck of the humerus. One splint was applied on the outside, and the arm bandaged firmly to the chest, which acted as another splint; a small pad of tow having previously been placed in the axilla. This gives less pain than two splints, and does not require to be taken down so often, which is of much consequence in such cases, as every time the arm is separated from the body, the fracture is disturbed. This bone united in three weeks.

The employment of long bags filled loosely with *bran*, which is readily fitted to the inequalities of the limb, while it forms an admirable defence against the splints, has for many years been preferred in this hospital to every other sort of padding. This, and the use of the long straight splints, have incalculably improved the treatment of fractures.

Hermaphroditism. A case of this kind was presented in a healthy child, being the second I have lately seen. In both, the appearance at first was decidedly that of a female; but on examination, the testes could be discovered in what looked like well-formed labia. The glans was largely expanded, and the rest of the penis as short as the clitoris at the same age. On its inferior surface, there was a groove leading towards the perinæum, where a sulcus was seen, and here the

urethra terminated, and the urine was evacuated. The sulcus gave a very imperfect appearance of a vagina.

Hernia. Marion M^cMath, æt. 40, was admitted 8th November, with a femoral hernia, which had been strangulated 36 hours. The warm bath, venesection, and the moderate use of the taxis, were found ineffectual, and the operation was immediately had recourse to. Several inches of highly inflamed gut of a dark chocolate colour were reduced. The vomiting ceased; she had free passage in the bowels, and appearances were favourable; but she became suddenly worse, and died on the evening of the 9th, about 36 hours after the operation. There was peritonæal inflammation, slight agglutination, and sero-purulent effusion. Three inches of the ileon, the part which had been strangulated, were in a state of sphacelation, being thickened, opaque, and of a dirty gray colour. The obturator artery arose from the internal iliac. This patient had been brought about 20 miles from the country with the gut strangulated. She died from the effects of the disease, and not from the operation, of which latter circumstance I have never seen an instance.

The other case was an inguinal hernia, in a child of nine months old, which had been strangulated about three hours, and was accompanied with vomiting, and the other usual symptoms. The tumour was large, and exceedingly tense. An approach to syncope was induced by eight leeches, and the bath, after which, the reduction was effected by the taxis.

Leeches are seldom of use in the herniæ of adults; but they are chiefly to be depended upon in such cases as this. They should be freely used, but the subsequent bleeding must be attended to. It was not troublesome in this case.

Periostitis and Necrosis. It is lamentable to observe how many fingers are destroyed, and limbs, or even lives lost, amongst the working classes, by acute periostitis, allowed to run on to necrosis and deep suppuration, from neglect of the proper treatment by leeching and incisions. Scarcely a day passes without some such case presenting itself in the waiting-room.

Two cases of this kind in the tibia were treated at the same time, and attracted considerable attention. One was a boy of 12, the other a girl about the same age. Both had been mistaken for erysipelas. In both, incisions were practised after admission; but these were to evacuate pus, and expose the dead bone. The extent of disease seemed greatest in the boy, but his constitution was the best. He became so weak from hectic and diarrhœa, that I feared I had imprudently let slip the opportunity for amputation. He was saved, however, even from this operation, principally, I think, by the sulphate

of quina, and firm bandaging, to restrain the discharge, instead of poulticing, which only increases it.

The girl was of a strumous habit, and excessively irritable and fretful from pain. The matter was freely evacuated, and she had the quina and opiates with some relief; but the diarrhœa and hectic were severe, and I amputated the leg, after it had become too evident that nothing else could save her.

Both ends of the tibia were deeply necrosed, and the ulceration had penetrated into the ankle joint.

Sarcocele. The case of sarcocele, in which the testicle was extirpated, had originated sixteen months before, from a kick. The tumour was the size of a man's two fists, heavy, firm, elastic, and at some points obscurely fluctuating. There was also a very large tumour above the left clavicle, which was only of six weeks' standing. He had been cured of chancres by mercury eighteen months before; and as there was a slight appearance of squamous eruption on the thigh, I was willing to hope that the tumours and his ill health depended on a syphilitic taint. He had been using camphorated mercurial ointment for four weeks. This was continued, and he had the sol. muriat. hydrarg. internally, until the system was under its influence. No amendment took place, and having already tried iodine unsuccessfully in many tumours, and seeing no probability of success from any medicine, I obtained the consent of a consultation, and removed the testicle with the knife. The cord was grasped between the finger and thumb, and no difficulty occurred in securing the vessels with the tenaculum, after they had been divided.

The tumour weighed sixteen ounces, and was composed of many semicartilaginous septa and cells, containing small quantities of glairy yellowish fluid. The wound from the operation healed readily, but his general health got worse; and as it was not reckoned prudent by my colleagues to attempt the removal of the tumour in the neck, I sent him to the country.

Spinal Injury. A case of injury of the spine having occurred to my colleague Dr. Maclachlan, and being afterwards under my care, in which the paralysis was considerably diminished by extension, and forcible attempts at reduction of the displaced vertebræ, the following case was treated in the same way.

Thomas Shaw, æt. 34, labourer, admitted 29th March, having two hours before received a severe injury of the spine, by a heavy boiler falling on him from a crane, whence it was suspended. The 10th, 11th, and 12th dorsal vertebræ projected backwards, but more particularly the 11th, which was very prominent. Sensation and motion were completely lost below the nates, and the bladder and rectum were both

paralyzed. The lower limbs were cold, and the pulse was feeble. Extension was now made from the shoulders and feet, and the displaced vertebræ pressed strongly forwards with the knee by Dr. Craig. This was continued for some time; and although no sudden reduction was felt, yet on examination afterwards, the projection had nearly disappeared. He was laid upon his back, with a firm pillow beneath the injured part. Sensation and heat almost immediately returned in the extremities, even as far down as the toes; but the power of motion remained the same, and the bladder and rectum were still paralyzed. The urine was withdrawn, he was cupped on the part, and had a dose of calomel and jalap, followed by an injection. On the 30th, he was easy, but there had been no stool from two injections. He had a draught containing three drops of croton oil, followed by a turpentine injection. On the 31st, the sensation in the limbs was nearly perfect, and there was now a slight degree of motion. There was no stool from the draught and another turpentine injection. Five pounds of warm water were therefore thrown into the rectum, by means of Jukes' apparatus. This produced two copious stools; and on the 1st April, the motion of the limbs had not increased, but he had passed some ounces of urine. The water injection was repeated.

On the 2d., notwithstanding every remonstrance against it, his friends insisted on carrying him home to a considerable distance in the country, and I have not been able to ascertain the result.

Although no crepitus was felt, I think there must have been fracture in this case; for the displacement was so considerable, that I do not think it could have existed at this part of the spine, without some degree of fracture, whatever might have been the case in the neck, where Mr. Lawrence has shown, that dislocation without fracture may sometimes be met with.

I believe that this man would have made a good recovery. The return of sensation and heat, even without any motion, seems generally to remove the risk of death from sloughing of the nates, &c.; and the reduction of the displaced vertebræ in this case was the undoubted cause of the immediate amendment that took place in this respect. The restoration of muscular motion must necessarily be a more gradual process, but this also is to be effected by persevering and proper treatment. The following case may be shortly noticed in illustration.

Felix M'Innes, æt. 38, collier, admitted 20th November, three days after having been knocked down by a part of the roof of a coal pit falling on his back. The last two dorsal

vertebræ were protruded, the integuments over them were swelled, and he had pain, but no crepitus on pressure. The power of motion in the lower extremities was completely gone. Sensation and heat remained. Belly swelled, but not tympanitic. Fæces passed involuntarily, and he required the catheter to remove the urine, which was bloody, and contained a great quantity of puriform matter. Had been leeches and bled from the arm before admission. The treatment now consisted chiefly in cupping, purging with colocynth and croton pills, blistering, the repeated burning of *moxa* on the part, and at last converting the moxa sores into pea issues. An increase of power was generally obvious after each application of the moxa. He also received benefit from dry frictions, and passive motion of the limbs, and from the internal use of the cuprum ammoniatum. The amendment was gradual, but at the end of two months, he was able to walk through the ward with little assistance. The urine had become natural; he had complete command over the sphincter ani, and complained only of some weakness of loins, and difficulty of micturition. He showed himself some time after dismissal, and was almost quite well.

Another case of the same description, produced by slipping the foot with a heavy weight on the head, was treated on the same plan, and dismissed after a similar period, walking without support.

Tumours. There were four very interesting tumours of the neck, which occupied a good deal of attention at the clinical lectures; but a description of their relative anatomy and structure, which gave them their interest, would occupy more space than I am allowed. The other tumours were unimportant, excepting an encysted tumour of the mamma, the account of which I must also omit.

Ulcers. Most of the ulcers on admission were more or less inflamed and irritable, or even sloughy. The treatment generally adopted at this period was rest, emollient poultices and fomentations, purging, leeching, &c. until a clean suppurating surface presented itself. To this succeeded the milder ointments, adhesive straps, nitrate of silver, in substance and solution, the weak nitric acid, or the chloride of lime lotion, &c. In some superficial sores, cotton wool was applied, and in others the straps were only removed occasionally, so as not to interrupt the formation of new skin. Where there was evidence of constitutional disorder, a few grains of calomel, the blue or Plummer's pill, with or without the decoct. sarsaparillæ, were used, and a gradual process of cicatrization generally took place. But to this plan and to this result there were many

exceptions, both from peculiarities in the original appearance of the ulcers, and from constitutional and other causes.

Three well marked cases of hospital gangrene occurred in succession in one ward, which was then unavoidably crowded. There were no extra-beds in this ward; but it is not the mere number that is to be attended to; the nature of the cases, in relation to their effect in generating noxious effluvia, must also be watched. All of these cases occurred after recent wounds. The first was a healthy young woman from the country, who had been bitten in the leg by a dog. The teeth penetrated the fascia, and gave rise to acute inflammation beneath it, for which it was found necessary to make incisions with the scalpel. The inflammation was relieved, and the incisions were healing, but gradually became inflamed, and covered with yellow sloughs, by the separation of which, the disease extended to the sound parts, so as at last to form a large sore.

The second was also a young and previously healthy woman, who was admitted with acute cellular inflammation of the leg and foot, for which a free incision was made with the scalpel. The usual relief followed, and the incision had nearly closed, when, without obvious cause, and with no apparent constitutional affection, it gradually became inflamed and sloughy. The edges were everted, and the whole sore filled with a dirty yellow fungus, which appeared as if undergoing the process of being squeezed out of it. One slough of this kind succeeded another, and after each separation, the fascia and muscles were exposed, and the circle of the sore extended.

The third case was a middle-aged woman, of rather intemperate habits, who occupied the next bed to the former. This had likewise been a case of cellular inflammation of the leg, from cold caught in her employment as a washer-woman. The disease was speedily checked by an incision, which was healing for a week after, at which time the edges became inflamed and everted, and the whole surface cast off repeated and deep sloughs, exactly like the former.

The treatment was various, consisting chiefly of leeching, opiate fomentations and poultices, carrot poultices, cinchona powder soaked with *ol. terebinthinæ*, solution of sulphate of quina, and several other lotions. None of these had more than a temporary effect. A solution of muriate of antimony, and a solution of arsenic, were the only applications of real service. Both acted in the same way, *viz.* by detaching an eschar, and leaving a healthy surface beneath. The butter of antimony acted the more speedily, but both were equally effectual. I have no doubt that the actual cautery would have served still better; but these cases all healed without it.

Urinary Abscess. This case was sent from the fever ward. The urine had been retained for 28 hours, and there was great distention and pain above the pubes, together with the usual appearance of the scrotum and perinæum in cases of infiltration. A gangrenous spot was seen at the lower part of the scrotum. The patient had had gonorrhœa eight years before, but never had any dysury till two days before, when it seemed probable he ruptured the urethra, while straining to make water.

With considerable difficulty, a gum catheter was passed into the bladder, and about a pound and a half of high-coloured urine removed. The abscess was then freely laid open, as far as the neck of the bladder, by an incision extending from the slough in the scrotum to the verge of the anus, and a large collection of very fœtid urine was evacuated. Smaller incisions were also made in different directions, and the catheter was left in the bladder. Extensive sloughs were thrown off, and a deep abscess towards the sacrum was afterwards laid open; but healthy granulations soon appeared, and in the fifth week there was only a small fistula below the scrotum, through which the urine partly escaped. This was twice touched with the actual cautery, and he was soon after dismissed cured.

Wounds. The only wound I shall notice is that of Mrs. McIntyre, who attempted to commit suicide, by making an incision on the fore part of the neck with a razor. It had penetrated the larynx, between the thyroid and cricoid cartilages, forming an opening large enough to admit a hazel nut. From the irregularity of the wound, and the shape of the opening into the larynx, more than one incision must have been made, and a portion of the cricoid cartilage must thus have been cut out. She breathed and expectorated by the opening, and her voice was lost. The œsophagus and large vessels had escaped. This was the second attempt at suicide, and the cicatrix of a former wound was seen over the os hyoides. The integuments had been brought together by stitches and plasters, but emphysema having occurred, they were removed, and the parts allowed to granulate. This process went on well, and, with the aid of the nitrate of silver, she was soon dismissed cured.

Operations. Several of the operations have already been noticed. They were fewer, and of less interest than common. All the greater amputations were performed by the double flap, with Lisfranc's knife; and I coincide with my colleagues in preferring this operation to the circular incision, except perhaps in the leg. For some time, I was apprehensive that muscular fibres laid over the sharp end of a divided bone would produce a conical stump from absorption, even after

cicatrizization had taken place; and I was led to this opinion from having seen a case of this kind, which had been amputated by the late Dr. Monteath. This, however, must have been accidental, for I have never met with it again. On the contrary, I believe there never were better stumps formed than by the method now recommended. Dr. Ballingall's objection, that the muscles of the flap are sometimes longer than the integuments, is best obviated by a careful attention to the position of the limb at the time of operating, so as to prevent the division of the muscles whilst they are either relaxed or on the stretch. Even in the circular amputation of the thigh, the abduction of the limb, and the division of the triceps whilst in a state of extension, is the frequent cause of a sinus at the inner side of the stump, and of an uneven surface afterwards. The elongation of the large nerves and tendons before their division, in the flap operation, has sometimes made it necessary to remove parts of them with the scissors, before applying the dressings; but I believe this arises from bluntness of the knife, and the increased force which is thus required in carrying it outwards.

The oblique division of the vessels, and the occasional difficulty in applying the ligatures from this cause, is less readily prevented, but does not form a serious objection where the parts are so much at command, as on the face of a flap. On the whole, the saving of pain to the patient, the greater facility of operating to the surgeon, and the expedition both in the operation and in the cure, induce me to think it probable that the circular incision will soon give place to the flap operation.

In the amputation near the shoulder joint, the flaps were so formed as to permit the removal of the whole of the humerus, if that had been found necessary. But the head of the bone was uninjured, and was therefore left in the socket, by which means the shape of the shoulder was much better preserved. This was a case of compound fracture, with comminution of the bone, rupture of the humeral artery, and extensive laceration of the soft parts. There was just sufficient space to apply the saw between the uppermost point of the fracture and the capsular ligament of the joint.

The amputation of part of the foot was performed on account of sphacelus after exposure to cold. The method adopted was different from what is usual. In order to save as much as possible of the foot, the metatarsal bone of the great toe was disarticulated from its junction with the internal cuneiform bone, and the remaining metatarsal bones were divided with the saw in a line with this. A flap was brought from the sole, and a very neat stump was thus formed. This patient had probably received his injury in the exercise of his calling,

which was known to be that of a *resurrection-man*. But he laboured under pectoral disease, and was very emaciated and weak. His debility was increased by the suppurations from both feet, so that he died after being about four weeks under treatment. There was chronic bronchitis and emphysema of the lungs.

All the amputations of the thigh recovered. That of the leg proved fatal from gangrene, owing to the obstinacy of the patient, an old man of intemperate habits, who, after a compound fracture of the leg, would not consent to the operation, until next day, by which time the case was almost hopeless.

The death from peritonitis, after the operation for fistula in ano, was one of those insidious and unexpected affections which are almost solely confined to hospitals, and, as far as my experience goes, are quite incurable by any treatment. I have tried depletion of every kind to the fullest extent; and in one case of pleuritis, after extirpation of the mamma, I thought I had conquered the disease by the tartrate of antimony in large doses, but in this I was deceived. How far it may be possible to discover, and successfully to combat these affections in their earlier stages, I cannot say; but I am sorry to confess that they have frequently eluded my most careful observation, until every remedy proved ineffectual.

All the cases of extirpation of the mamma recovered. One was the encysted tumour already alluded to; the others were cancer. One of the other tumour cases proved fatal. This was a tumour of the neck, in a woman aged 70. It was about the size of a hen's egg, and lay in contact with the submaxillary gland, tendon of the digastric muscle, &c. No difficulty occurred in the operation, in the course of which, the facial artery was divided, and secured by ligatures, which were required at both ends, owing to the anastomoses by the coronary arteries. Conceiving that a union by the first intention was improbable, and fearing that there might be some hæmorrhage, which was to be avoided in so old a person, I placed a bit of folded lint in the wound. This was removed at the first dressing, and she seemed to be doing well. But the wound did not heal; she was seized with a short cough, refused support, and died on the eleventh day after the operation. A considerable quantity of pus had penetrated down towards the sternum, and this was probably the cause of the fatal issue. I had formerly been troubled with hæmorrhage from a wound of the same kind, owing to a want of support, and pressure, which the dossil of lint afforded; but in this case I now think it would have been better to have attempted union by the first intention.

VIII. Report of Diseases among the Poor of Glasgow, during February, March, and April, 1828. By JOHN STIRLING, Member of the Faculty of Physicians and Surgeons, and Surgeon to the North-west District.

DISEASES.	No. of Cases.	Sent to Infr.	Deaths.	DISEASES.	No. of Cases.	Sent to Infr.	Deaths.
Abortio,	5			Brought forward,	909	84	30
Abscess,	19			Hysteria,	34		
Amenorrhœa,	8			Hysteritis,	1		1
Anasarca,	28	1		Icterus,	4		
Aphthæ,	1			Infantile remittent fever,	2		1
Ascites,	14	4		Injury of head,	3		1
Asthma,	20	2		Iritis,	1		
Bronchitis,	15	2		Joint, diseased,	6		
Burn,	10			Laryngitis,	3	1	
Calculus,	1			Larynx, ulceration of,	5		
Cancer,	2			Leucorrhœa,	3		
Cancrum oris,	6	1		Lumbago,	9		
Carditis,	3	1		Mania,	6		1
Catarrhus,	26			Menorrhagia,	8		1
Cephalalgia,	6			Morbus coxarius,	2		
Contusio,	27			Necrosis,	1		
Cynanche tonsillaris,	14			Nephritis,	2		
trachealis,	4	1		Obstipatio,	17		
Debility,	15	1		Odontalgia,	4		
Dentitio,	18			Ophthalmia,	32		
Diarrhœa,	56	1		Otitis,	1		
Dislocation of shoulder joint,	1			Paralysis,	4		
Dysenteria,	62	3		Pertussis,	26		4
Dyspepsia,	43			Phthisis,	22		9
Enteritis,	9	1		Pleuritis,	20	1	2
Epilepsia,	1			Pneumonia,	44	3	5
puerperalis,	1			Psora,	30		
Epistaxis,	5			Pyrosis,	3		
Erysipelas,	10			Rachitis,	3		
Exostosis,	1			Rheumatismus,	47	6	
Fever,	392	81	11	Rubeola,	74		5
puerperal,	1		1	Scrofula,	5		
Fracture of clavicle,	1			Spermatic cord, inflamma-			
humerus,	2			tion of,	1		
radius,	1			Sprain,	10		
rib,	1			Syphilis,	10	1	1
neck of thigh				Tabes mesenterica,	4		2
bone,	2			Tic douloureux,	2		
compound, of leg,	2			Tinea capitis,	8		
Gastritis,	2			Tumour,	11		
Gastrodynia,	14			Tussis senilis,	26		
Glossitis,	1			Ulcers,	32	2	1
Hæmatemesis,	1			Urethra, stricture of,	1		
Hemiplegia,	5	2		Urticaria,	1		
Hæmoptysis,	5			Uterus, diseased,	1		1
Hæmorrhoids,	16			prolapsus of,	1		
Hepatitis,	19			Variola,	9		1
Hernia,	4			Vermes,	36	1	
Hydrocele,	1			Vertigo,	10		
Hydrothorax,	2		1	Whitlow,	4		
Hypertrophia,	5			Wound,	9		
Hypochondriasis,	1						
Carry forward,	909	84	30	Total,	1507	99	66

Total number of cases,	. . . . .	1507
Sent to infirmary,	. . . . .	99
		<hr/>
Number treated in their own houses,	. . . . .	1408
Deaths,	. . . . . 66 = 1 in 21½	
Number of cases of fever treated in their own houses,	. . . . .	311
Deaths from fever,	. . . . . 11 = 1 in 28 3-11ths.	

Remarks. During the months of February, March, and April, *fever* prevailed to a greater extent in the north-west district, than in any equal period since 1819. By comparing the reports which I have obtained from the various district surgeons, however, the disease appears to have spread in a much more alarming degree in particular districts, than in other divisions of the city. This circumstance is not attributable to locality, or the density of the population, for in these respects, no two districts differ more than the south-west and north-west. The first is situated near the centre of the city, slightly elevated above the level of the river, formed of a compact pile of buildings, bounded by four principal streets, and inhabited altogether by the lower ranks of society. The second extends nearly two miles to the west and north, and on its outer margins presents the appearance of isolated villages. Yet it will be observed from the subjoined table, that in these the disease prevailed to the greatest extent.

Proportion of the Cases of Fever to the total number reported.

South-west district, second division,	. . . . .	1 in 2
North-west district,	. . . . .	1 in 3 1-13th
South-east do.	. . . . .	1 in 5¼
North-east do.	. . . . .	1 in 5¾
South-west do. first division,	. . . . .	1 in 10
South-west do. third division,	. . . . .	1 in 11¼

At the commencement of the disease, the excitement seldom warranted the use of the lancet, and it generally subsided without requiring the aid of stimulants. The use of wine, in sparing quantity, even in cases where there appeared a tendency to collapse, almost invariably aggravated the complaint; and I am assured, that had the administration of wine been more frequently ordered by the district surgeons, it would have added greatly to the mortality of the disease.

When medical aid was applied for within the first few days of its progress, emetics were generally exhibited, but without appearing in a single instance to arrest the disease. Cold affusion was resorted to in two cases only, as in general the circumstances of patients in the district do not admit of its employment, nor was the heat of skin such as to render it advisable. In one of the cases in which it was employed, and in which there was a tendency to delirium, it produced at least tempo-

rary relief. The symptoms, however, returned on the following day, and the patient, at the urgent request of his friends, was sent to the infirmary. In the other case, its application was followed by sound sleep, profuse perspiration, and a marked relief of all the symptoms; the crisis, however, appeared not to be final, as the fever continued, though much moderated for a few days longer, after which it gradually disappeared. Laxatives, diaphoretics, spunging with cold water, and the application of leeches, and cloths dipped in cold water where great pain was felt in the head, or tendency to delirium observed, constituted the practice in the greater number of the cases. Delirium, however, occurred very seldom, and except in the case treated by cold affusion, only towards the termination of the disease.

Bronchitis was a very frequent concomitant, but in so slight a form, as not to require any very active treatment. In a few cases, the lungs became more seriously affected with inflammation, indicated by pain in some part of the thorax, cough, and difficulty of respiration; while in some of the cases, the existence of inflammation could be detected only by the application of the stethoscope. The right lung seemed to be more frequently the seat of disease than the left. In such cases, very great relief was obtained from general bloodletting, and the application of blisters. The dread of inducing debility never deterred from repeating the operation, if the local disease pointed out its necessity. The debility was almost invariably more apparent than real. After bloodletting, the pulse not only became less frequent, but likewise more full.

In the majority of the cases, the return to health was marked by no evident crisis, and in these the disease generally terminated from the 14th to the 21st day. It appeared to be carried off by a spontaneous diarrhoea, which continued for several days, during which the fever gradually subsided. In those cases which terminated before the 14th day, the cessation of the fever was generally indicated by a profuse perspiration, after which relief was always apparent. This result, however, never occurred after sweating produced by artificial means. One instance was observed, in which the disease terminated by an immoderate flow of urine. In a second case, the fever subsided after an attack of epistaxis, and in two other cases after the occurrence of violent uterine hæmorrhage, which produced very great debility.

Three fatal cases occurred in the north-west district, from effusion on the surface of the brain. They all died within 36 hours of the first visit, and about the eighth day of the disease.

Measles prevailed to a considerable extent during the period

embraced in this report, among the children in the district. In many cases, the windpipe and lungs were seriously affected, even before the eruptive stage; but it was generally after the cessation of the eruption that the inflammatory symptoms were most violent. These were marked by hoarseness, some even emitting the shrill sound peculiar to croup; by rapid and interrupted breathing; pain referrible to some part of the thorax; frequent and distressing cough; bloated and turgid countenance; heat of skin, and rapid pulse.

The treatment consisted in immersion in a hot bath, simple or medicated, general and local bleeding, the application of rubefacients and vesicatories externally, purgatives, diaphoretics, and demulcents internally.

Many practitioners entertain an aversion to the application of blisters to children affected with measles, but I have never met with a single instance where their use proved injurious. Indeed, in no case would I consider myself to have done my duty to my patient, if, after bleeding, and other suitable measures, the symptoms not being relieved, a blister of ample magnitude were not applied. In one or two cases, where the blistered surface assumed an unhealthy aspect, it readily healed under the use of the common turpentine liniment. A lotion of chloride of lime of suitable strength might precede each application of the liniment with advantage.

Puerperal convulsions form one of the most alarming accidents which can possibly befall a parturient female. I offer the following example of its successful treatment, in a case of very great violence.

February 4th, 1828, I was requested to visit Mrs. M'G. aged 30, far advanced in her sixth pregnancy. She complained of violent and spasmodic pain, referred chiefly to the region of the stomach, but more or less diffused over the umbilical region. The pain was so exceedingly severe, that she could give no account of her sufferings. She tossed about in bed, and changed her position so rapidly, that it was impossible to obtain any information from manual examination. The attendants informed me that she had approached the period of her confinement, but from the continual jactitation, I could not ascertain whether labour had commenced. She had an attack of fever four or five months ago, recovered rapidly, and was in the enjoyment of good health, when seized with this complaint. Bowels regular, and had been freely opened before the attack. I ordered ʒj of laudanum to be given immediately, and ʒss in two hours, unless relieved.

Eight P. M. I was urgently called to visit her, and learned that she had had a severe paroxysm of puerperal convulsions,

which had recently subsided. Face swollen; lips purple; pupils dilated and insensible to the stimulus of light. Breathing stertorous. Froth and clotted blood, in large quantities, issuing from the mouth. Pulse 116. Womb in a state of permanent contraction, harder than I had ever felt it during the existence of the most severe labour pain. Inequalities on the surface of the child's body were distinctly cognizable through the abdominal and uterine parietes. A transverse sulcus was discovered a little above the pubes, from the contraction of the circular fibres probably upon the neck of the child. Os uteri dilated to nearly an inch in diameter. Anterior part of the cervix expanded over the head of the child, and so tensely applied, that the sutures could be traced through its substance. It was impracticable to introduce even the nail of the forefinger between the os uteri and head of the child. Blood was drawn to the extent of sixty ounces. During the bleeding, she was seized with another convulsive paroxysm, which lasted about five minutes. The bleeding produced an approach to syncope. After the operation, the body of the uterus continued equally hard and contracted. Its orifice, however, permitted the introduction of the finger to the extent of about half an inch; but its fibres communicated a sensation similar to that produced by a tense cord. She remained quiescent until 10 o'clock, when she was again bled to the extent of twenty-four ounces. Great restlessness, apparently increased at intervals from the accession of labour pains, was observable. A stimulating clyster, which operated freely. I determined to effect her delivery as soon as the state of the os uteri would permit. This resolution was confirmed by the accession of another convulsion. In a short time, the os uteri became somewhat dilatable, and before 12 o'clock, dilatation was so far accomplished with the fingers, as barely to admit the application of the forceps. Several circumstances conspired to render this an operation of extreme difficulty. Of these, I may mention the incomplete dilatation of the os uteri, the situation of the child's head high in the pelvis, and the extreme restlessness of the patient, which the power of several assistants could not control. The introduction of the forceps having been accomplished, the extraction of the head was easily effected. In a short period thereafter, the body of the child was expelled, and by the same pains, the placenta protruded at the external orifice.

Soon after delivery, a state of collapse supervened. Pulse weak, fluttering, and could not be numbered. She had half a glassful of spirits diluted with water, and ʒj of laudanum. The same state continuing, one-half of a similar dose was

ordered in an hour afterwards. She soon fell into a state of slumber, breathing naturally.

5th February. Continued to sleep until 5 o'clock this morning, when she again became restless, and shortly afterwards was attacked by another convulsion, which was again repeated at 9 o'clock. Face and hands now greatly tumefied. Aberration of mind. Headache. Blindness. Tongue black, chopped, and greatly swollen. No abdominal pain. Pulse 152, incompressible. Bleeding to 20 ounces. While the arm was being tied preparatory to bleeding, she was seized with another fit. Head to be shaved. Iced water to be frequently applied to the scalp. Ten grains of calomel to be immediately given, and an infusion of senna with salts at regular intervals, until the bowels were freely purged.

6th February. No convulsions during the last 24 hours. Headache abated. Vision returned. Cannot name her most intimate friends. Still unconscious that delivery has been effected. Recollects no past event. Expresses surprise at observing stains of blood. Countenance idiotical. Pulse 126. Medicines and cold applications continued.

7th February. Stated to her husband that she had some slight abdominal pain, with discharge, and that she would require the assistance of the midwife. The communication of her delivery produced no effect upon her mind. Headache, and flashing of fire before the eyes. General muscular pain. Bowels freely opened. Pulse 88. Cold affusion on the head.

From this period, the daily reports present so little interest, that they are not worthy of record. Violent headache harassed her for several days; but it yielded to gentle laxatives, light diet, and an occasional anodyne.

1st July, 1828.

ANALECTA.

1. *Properties of Blood.*

DR. JOHN DAVY has published a series of observations on this subject, in several important particulars contradictory to the statements made in an Essay on the Blood by Dr. Scudamore.

1. *Specific gravity of fibrin.* It seems a very natural conclusion, that the fibrin is the lightest ingredient of the blood, since it is the principal material of the buffy coat. Yet, fibrin is really denser than serum. Pour off the serum of the sily blood, and cut off a portion of the buffy coat, and throw it into the serum; it will invariably sink, if not buoyed up by air-bubbles.

When the nature of the crassamentum is considered, and the manner in which it is formed, the apparent anomaly of the buffy coat being at the surface, though of greater specific gravity, will vanish. In sily blood, the serum and coagulable lymph are of greater tenuity, or less viscid, than in blood that is not sily; and the sily blood is generally slower in coagulating than blood that is not sily, though not universally so. When the former quality alone prevails, the buffy coat which forms is thin; when both qualities co-exist, the buffy coat is thick, from the greater depth of subsidence of the heavier red particles. Now, though the fibrin of the buffy coat is of greater specific gravity than serum, the *liquid* mixture of coagulable lymph and of serum is of less specific gravity than the liquid mixture of red particles, serum, and coagulable lymph, and in consequence the former becomes supernatant. Before coagulation, it is the comparatively dense mixture of red particles and serum which supports the liquid fibrin; when coagulation has occurred, the substratum of red particles enveloped in fibrin still gives support; and the longer the coagulation is in taking place, so much the less fibrin is mixed with the red particles, so much the more rises, and, *cæteris paribus*, so much the thicker is the buffy coat. In healthy blood, on the contrary, in which the serum and coagulable lymph are more viscid, the red particles are supported till coagulation takes place, and then they are retained like water in a sponge.

2. *Comparative specific gravity of buffy blood.* Dr. S. has stated that the blood which gives the fibrinous coat in a great degree, has a lower specific gravity than healthy blood. The result of Dr. D.'s experiments would seem to indicate that there is no necessary, that is to say, no constant connexion between the specific gravity of the blood, and the presence or absence of the buffy coat.

Dr. D. believes that it may be laid down as a general rule, that the blood of persons labouring under acute disease differs very little from healthy blood, and is of comparatively high specific gravity, whether buffed or not; whilst, on the contrary, the blood of persons labouring under chronic disease, attended with debility and vomiting, is comparatively dilute and of low specific gravity; and that this, though most frequently associated with the property of having a buffy coat, is not necessarily so.

Nor does Dr. D. believe that the time required for coagulation is anywise constantly connected with the specific gravity. When the serum and coagulable lymph are not viscid, and, in consequence, not capable of supporting the red particles, these particles fall down rapidly; if the fluidity is great, 2 minutes are sufficient for their subsidence $\frac{1}{8}$ or even $\frac{1}{4}$ of an inch. No doubt very buffy blood is very slow in coagulating, for the red globules cannot sink far in a very short time; and it is well known that healthy blood, which is of comparatively high specific gravity, coagulates rapidly. Dr. D. maintains, however, that the qualities in question are rather accidentally than necessarily connected, and that the general rule of Dr. S. that "blood possessing the highest specific gravity coagulates

the most quickly," while "that which gives the fibrinous coat in a great degree is slowest in coagulating," is not founded on a basis sufficiently broad.

3. *Proportion of fibrin in buffy blood.* As sily blood commonly affords a contracted crassamentum, in which the fibrin is comparatively condensed, and in which the residual proportion of serum is comparatively small, it follows that a definite quantity of sily crassamentum *must* contain more fibrin than the same quantity of healthy crassamentum, and yet the healthy blood *may* contain more fibrin than the sily blood. Dr. D. regards Dr. S.'s experiments on this point as unsatisfactory, in consequence of the proportion of fibrin not having been estimated for the *blood*, but for the *crassamentum*.

From Dr. D.'s own experiments, it would appear, that there is no constant relation between the appearance of the buffy coat, and the proportion of fibrin which the blood contains. No doubt, *cæteris paribus*, the buffy coat will be thickest where the proportion of fibrin is largest; and in most of the *phlegmasiæ* the proportion of this ingredient of the blood seems to increase as that of the red particles diminishes, but not, Dr. D. conceives, generally to any very great extent.

Dr. D. admits that there is often a minute variation of the proportion of fibrin in the blood as it flows, the proportion of fibrin being smallest in the blood last drawn; but in one instance the proportion in the blood last drawn was found to be greater than in that first drawn. Dr. D. thinks it probable that this peculiarity arose from blood different from the general mass of the circulating fluid, and which had been liberated from confinement and restored to the circulation from a state of congestion in a diseased organ. The patient from whom this blood had been taken had been ill about 24 hours with dysenteric symptoms, complicated with pain in the region of the liver; and he was greatly relieved by the venesection.

4. *No evolution of heat in the act of coagulation.* Dr. D. observes that the coagulation takes place slowly; that the greatest degree of contraction that the crassamentum experiences is many hours in being completed; that the quantity of matter that changes its form from liquid to solid is exceedingly minute; and that, therefore, if heat be evolved, it must, in all probability, be too inconsiderable to be detected.

Mr. Hunter, who first considered the subject, made an experiment, conducted in the most satisfactory manner, on the blood of the turtle, the temperature of which was the same as that of the air, and he could detect no evolution of heat in the act of coagulation.

In corroboration, Dr. D. states, that when the serum of the blood is coagulated by means of dilute nitric acid, there is not the slightest elevation or change of temperature; and concludes, that no heat can be given off during the coagulation of blood, where so small a quantity of matter becomes solid, and that slowly, since none is given off during the coagulation of serum, when so large a quan-

tity is solidified, and that suddenly, and which in its nature is so analogous to fibrin.

5. *No free carbonic acid in blood.* Dr. D. adopts this opinion—*1st*, Because the alkali in blood is not saturated with carbonic acid. It is therefore contrary to all the rules of chemical science to infer, that blood should contain a free acid. *2dly*, Because the serum is capable of absorbing carbonic acid gas to a greater extent even than water. *3dly*, Because during the coagulation of blood spontaneously, and the coagulation of serum by heat, he never observed carbonic acid to be disengaged. *4thly*, Because he has not been able to procure carbonic acid gas from blood just drawn from the blood-vessels, and still warm, when placed under a receiver, and completely exhausted of air. *5thly*, He has added carbonic acid gas to blood and to serum, over mercury, at the rate of $\frac{1}{4}$ th of a cubic inch of gas to the ounce, the whole of which has been absorbed, and yet the blood and serum still exhibited free alkali, indicated by the change produced on litmus and turmeric paper; he has raised the temperature of the blood and serum to blood-heat, and no carbonic acid gas has been disengaged; he has coagulated both, by heat of about 200° Fahrenheit, and even then not a particle of gas was extricated.—*Ed. Med. and Surg. Journ. No. 95.*

2. *Spontaneous Combustion of the Human Body.*

M. JULIA FONTANELLE lately read a paper on this subject, in the Academy of Sciences at Paris, in which he related fifteen cases of spontaneous combustion, enabling him not only to establish the incontestable reality of the phenomenon, but also to make known the principal circumstances which accompany its manifestation. These circumstances are:—1. That persons who have been destroyed by spontaneous combustion, have for the most part been immoderately addicted to the use of spirituous liquors. 2. That this combustion is almost always general, but that it may be only partial. 3. That it is much rarer in men than in women, and that the women in which it has been manifested have almost all been aged; one woman only was 17 years of age, and in her the combustion was but partial. 4. That the body and viscera have always been burnt, while the feet, the hands, and the top of the head have almost always escaped. 5. Although it is demonstrated that several loads of wood are necessary for reducing a dead body to ashes by ordinary combustion, incineration is effected in spontaneous combustions without the most combustible objects placed in the vicinity being burnt. In one case, there was a very singular coincidence of two persons being consumed at the same time, in the same apartment, without the apartment or the furniture being burnt. 6. It is not demonstrated that the presence of a burning body is necessary for producing spontaneous combustion of the human body; on the contrary, there is every reason to believe the reverse. 7. Water, so far from extinguishing the flame, seems to render it more active; and after the flame has disappeared, the internal combustion con-

tinues to be effected. 8. Spontaneous combustions have appeared more frequently in winter than in summer. 9. No remedy has been found for general combustion, but only for partial. 10. Those who undergo spontaneous combustion are the prey of a violent internal heat. 11. Spontaneous combustion develops itself suddenly, and consumes the body in a few hours. 12. The parts of the body which are not consumed by it are attacked by sphacelus. 13. In individuals affected by spontaneous combustion, there supervenes a putrid deterioration, which presently brings on gangrene. 14. The residuum of spontaneous combustion consists of greasy ashes, and an unctuous soot, both having a fetid odour, which diffuses itself through the apartment, impregnating the furniture, and extending to a great distance.

Most authors who have spoken of spontaneous combustions, have imagined they discovered an intimate relation between their manifestation and the immoderate use of spirituous liquors in the individuals attacked. They suppose that these liquors being continually in contact with the stomach, penetrate through the tissues, and fill them up by saturation in such a manner, that the approach of a burning body is sufficient to induce combustion in them. M. F. does not consider this explanation satisfactory. He finds his opinion, *1st*, on the circumstance that there is no proof of this alleged saturation of the organs in persons addicted to the use of spirits; *2dly*, on the circumstance that this saturation itself would not suffice to render the body combustible; and to demonstrate this assertion, he gives the results of several experiments, in which he in vain tried to render ox flesh inflammable by steeping it for several months in brandy, and even in alcohol and æther.

Another explanation has been proposed. Dr. Marc and others, from the development of hydrogen gas which takes place in greater or less quantity in the intestines, have been led to imagine that a similar development may take place in other parts of the body, and that the gas might take fire on the approach of a burning body, or by an electrical action produced by the electric fluid, which might be developed in the individual thus burnt. According to this theory, there are supposed, in subjects affected by spontaneous combustion; 1. an idio-electric state; 2. the development of hydrogen gas; 3. its accumulation in the cellular tissue. This explanation would appear to be confirmed by an observation of M. Bailly's, who, on opening a dead body, over the whole of which there was an emphysema, which was greater in the lower extremities than anywhere else, remarked, that whenever a longitudinal incision was made, a gas escaped, which burned with a blue flame. The puncture of the abdomen yielded a stream of it more than six inches high. What was very remarkable was, that the gas contained in the intestines, so far from increasing the flame, extinguished it. M. F., for reasons similar to those which induced him to reject the first hypothesis, is of opinion, that the presence of hydrogen gas cannot be admitted as the cause of spontaneous combustion. He finds this opinion

more particularly upon experiments, in which he in vain tried to render very thin slices of flesh combustible, by keeping them for three days immersed in pure hydrogen gas, in percarburetted hydrogen gas, and in oxygen gas.

M. F. considers the opinion equally untenable, that spontaneous combustion of the human body is owing to a combination of animal matter with the oxygen of the air, whatever may be the alterations which this matter may undergo; 1. because a sufficient temperature is not developed; 2. because, admitting this combustion as real, the residuum would be charcoal, which could only be incinerated at a red heat, while, on the contrary, there is nothing but ashes; 3. because one of the products of spontaneous combustion of the human body is an unctuous substance, which the combustion of animal substance never yields; 4. because it scarcely yields any ammoniacal products, while such are always produced by animal combustion.

After thus rejecting all the hypotheses hitherto proposed, M. F. concludes, that what are called spontaneous combustions of the human body, are not true combustions, but intimate and spontaneous re-actions, altogether independent of the influence of external agents, and depending upon new products originating from a degeneration of the muscles, tendons, viscera, &c. These products, on uniting, present the same phenomena as combustion, without losing any of the influence of external agents, whether by admitting the effect of the opposite electricities of Berzelius, or by adducing in example the inflammation of hydrogen, by its contact with chlorine, arsenic, or pulverised antimony projected into this latter gas, &c.

To the objection, that whatever may be the cause which induces this combustion, the caloric disengaged ought to be considerable, and consequently, should ignite all the objects in the neighbourhood, it may be answered, that all combustible substances do not by any means disengage an equal quantity of caloric by combustion. Davy has shown, that a metallic gauze, having 160 holes in the square inch, and made of wire $\frac{1}{60}$ of an inch diameter, is penetrated at the ordinary temperature by the flame of hydrogen gas, while it is impermeable to that of alcohol, unless the gauze be very much heated. According to the same chemist, gauze of this kind raised to a red heat, allows the flame of hydrogen gas to pass through it, without being permeable to percarburetted hydrogen gas. It is probable from this, that the products arising from the degeneration of the body may be very combustible, without, however, disengaging as much caloric as the other combustible bodies known, and without leaving a residuum as the two latter gases; and, in fine, that in some subjects, and chiefly in women, there exists a peculiar diathesis, which, conjoined by the asthenia occasioned by age, a life of little activity, and the abuse of spirituous liquors, may give rise to a spontaneous combustion. But M. F. is far from considering as the material cause of this combustion, either alcohol or hydrogen, or a superabundance of fat. If alcohol plays a promi-

ment part in this combustion, it is by contributing to its production ; that is to say, it produces, along with the other causes mentioned, the degeneration which gives rise to new products of a highly combustible nature, the re-action of which determines the combustion of the body.—*Ed. New Philosophical Journal, No. 9.*

3. *No Sensation or Voluntary Motion for Seventeen Years.*

THE President of the Royal Society, Mr. Gilbert, has published an account of a girl who lived till her seventeenth year, without having given any indications of sensation or motion. She was prematurely born, and was with difficulty induced to take the breast. In a few weeks she was seized with convulsions, and soon after lost the sense of hearing and of sight, which appear never to have been perfect. Taste only remained. She never had the power of voluntary motion ; and never uttered any articulate sound. The bowels were slow, so as always to require medicine ; and she had no command over the sphincters. She grew to the usual length, but her spine and limbs were distorted. The marks of puberty were not wanting. Exactly on the day when she completed her seventeenth year she died, seemingly from increase of weakness, in a manner so gradual, that her attendants thought her asleep. On dissection, the following appearances were observed by Mr. Coles :

“ On removing the brain from the basis of the skull, so as to expose the nerves, we could trace each pair taking their usual course to their destination ; and they all appeared firm and healthy, as in the most intelligent individual. But in the base of the skull itself, not a vestige of the *dura mater* was to be seen. Its place was supplied by a thin semi-transparent membrane, very lax and irregular, so that it afforded no protection to the nerves in their exit from the skull.

“ On the back part, likewise, the whole or the greater part of the *tentorium* was deficient, thus allowing the whole weight of the brain to rest on the cerebellum.

“ Nothing further appeared worthy of observation. From these circumstances, I should be inclined to say (as far as human research can explain the mysteries of our nature), the causes of the child's deficiency were as follow : ‘ That from the want of the *dura mater* on the base of the skull, and its place being only imperfectly supplied by the thin expansion before mentioned, the mass of brain was allowed to press on the nerves of sense as they passed through their separate foramina, and thus their vital principle became destroyed ; and that the cerebellum, not having any protection, in consequence of the want of *tentorium*, was also pressed upon by the cerebrum, which likewise suffered in its turn, thus probably accounting for the total extinction of intellect.’”—*Ed. Med. and Surg. Jour. No. 95.*

I. *On the Laws of Sympathy.* By JAMES SYM, M. D.

The Physiologist "would be engaged in no unthrifty employment if he were to follow up and arrange, in a regular classification, these specific and mysterious relationships which single organs hold with single organs, and which are subordinate to the general harmony of the entire machine."—Study of Medicine, Vol. II. p. 493.

1. *The Sexual System of the Female.*

THE sexual system of the female comprises the uterine and mammary organs; the former destined to prepare and mature the fœtus, the latter to nourish the infant. But whilst both furnish constituent materials for the offspring, the ovum must be supplied with semen, and the milk with saliva and other digestive fluids, before they can enter into its organization. Hence, the demands upon the sexual organs are only occasional, because they are determined by circumstances connected with independent agents.

The medium through which these agents give intimation, that a proper occasion for a supply of organizable matter has arrived, is, in either case, a mass of very sensitive erectile tissue; which being stimulated by communication with the genitals of the male, or the tongue of the infant, solicits the disengagement of an ovum, or an excretion of milk. The clitoris and nymphæ, and the nipples are accordingly so placed as to receive most conveniently their proper excitement; and the associated glands discharge their products into mucous ducts leading ultimately to the external surface of the body.

We thus see that the two branches of the female sexual system, which perform similar general functions, resemble each other in structure: we shall further find that they are associated together in all their actions by that concordance both in time and mode, which has received the name of Sympathy.

When the menstrual flux is about to establish itself at the age of puberty, and the uterus acquires the faculty of con-

ceiving, the breasts also become fit for performing their appropriate function; and the uterine activity is accompanied by a peculiar mammary emotion, to which the female had been previously a stranger. Excitement of the erectile tissue of the nipples induces sympathetically an excitement of the corresponding apparatus of the genital organs.* When the womb becomes the focus of an increased determination of blood during pregnancy, the breasts are simultaneously enlarged, and secrete a nutritious fluid. When the infant is first applied to the breast of a puerperal woman, after-pains are excited in the uterus; the evacuation of the one organ being accompanied by an expulsive effort in the other. Whilst one breast yields milk to the infant, the other sometimes spouts forth its contents in a salient jet, which shows that a sympathy subsists between the two breasts. A nurse, who sleeps with her husband, requires a less stimulant regimen than when they live apart from each other; and the Hottentots irritate the vaginæ of their cows in order to make them yield larger quantities of milk.†

When the menses find difficulty in establishing themselves at the age of puberty, or become suppressed in after life, an emission of milk, or even of blood, may take place from the nipples; and when they are about to take their final leave of the constitution, the breasts are apt to become morbidly irritable. Women affected with uterine pains, premonitory of abortion, are simultaneously affected with pains in their breasts;‡ and when the foetus dies, the breasts become flaccid, the uterine plethora having subsided. A false conception is accompanied by a secretion of milk in the same manner as if a real foetus were contained in the womb; which shows that it is the condition of the maternal organs of generation, and not any thing peculiar to the foetus, that produces the sympathetic affection of the breast. Accordingly, in puerperal fever, when the uterine secretions are suspended, the breasts cease to secrete milk. Nymphomania, which depends on præternatural erethism of the genitals, has been excited in puerperal women by a sudden check given to the mammary evacuation.

Hence, the uterus and mammae sympathize with each other both in their healthy and morbid functions. Are they also

* Paré's Works, Lib. xxiv. chap. 4.

† Study of Medicine, Vol. v. p. 96.

‡ A lady, who has very frequently miscarried at an early stage of pregnancy, informs me that the pain uniformly seizes her right breast, when the right side of the hypogastrium is affected, and *vice versa*; as if each horn of the uterus had under its influence its corresponding mamma.

liable to be simultaneously affected with disease of structure?*

The left mamma of a young girl became, without any external cause, affected with acute inflammation, during the uterine plethora that immediately preceded the commencement of menstruation. An unmarried female, subject for several years to chronic inflammation and enlargement of the uterus, had also a painful enlargement of the right mamma. By the repeated application of leeches to the vulva, and other remedies directed to the uterine affection, both organs were apparently restored to health: but in consequence of imprudent exertions the uterine disease returned, and its return was immediately re-accompanied by the affection of the breast. The mother also of this patient was long subject to excessive menorrhagia, and the uterus was not only much enlarged, but the os tinæ was in a fungous state. Her right breast became simultaneously affected to a still greater extent than that of her daughter; but as she has ultimately recovered from both diseases, it would appear that neither organ had become scirrhus. I was present some time ago at the extirpation of a diseased breast, in which an abscess had previously formed between the nipple and axilla, and after discharging its contents had healed up, leaving the mammary gland converted throughout into a mass of scirrhus. Soon after the operation the uterus was discovered to be diseased; it rapidly swelled up so as to occupy the whole hypogastric region; an abscess burst, discharging its matter by the anus; and the tumour in a great measure subsided; but still the uterus was found to be in a scirrhus state; and the disease, after extending to the vagina, carried the woman to her grave.†

We are, therefore, warranted in concluding, that the two branches of the sexual system of the female, which perform analogous functions, resemble each other in structure, and sympathize with each other in all their actions, whether healthy or morbid, functional or nutritive.

* Since the apparatus by which a secreting organ is nourished, and that by which its peculiar product is eliminated, are not so distinct from each other as to admit of the one being long or seriously deranged, without an extension of the derangement to both, we are almost prepared to admit as a corollary to the proposition expressed in the text, that the two branches of the female sexual system shall have a tendency to be simultaneously affected with structural disease. The only satisfactory method of establishing this corollary, however, is by an examination of facts.

† The association of organic disease of the mammæ with a similar affection of the uterus is so common that a surgeon ought not to extirpate the former without having previously satisfied himself with regard to the soundness of the latter.

2. *The Salivary System.*

Whilst the sexual organs afford nourishment to the offspring, there are others which elaborate matter subservient to the nourishment of the individual. The most important of these are the parotid, maxillary, sublingual, and perhaps the thyroid glands, constituting the salivary system of mastication; certain minute glands supposed to exist in the mucous membrane of the stomach for supplying the gastric juice; and the pancreas, the secretion from which is the last ingredient in the process of chylicification. It is only when food is presented that large demands are made upon these organs for their contribution of digestive matter: so that in the general nature of their functions they are analogous to the sexual apparatus.

With regard to their structure, the salivary organs of mastication consist of secreting glands, furnished with mucous ducts: and in their vicinity erectile tissue is placed in such situations as to expose it most freely to be stimulated either by the food itself, or by the movements attending its introduction. This tissue may surround the orifices of the ducts, as is the case with the maxillary ducts; or it may be placed at some distance from them, as is the case with the pulps within the teeth, and the papillæ upon the anterior part of the tongue. In the former situation it may be compared with the nipples; in the latter, with the clitoris. Wherever it is placed, it is excited by the admission of the ingesta; and this excitement calls forth a secretion of saliva from the associated glands. Too little is known of the gastric and pancreatic secretions to enable us to determine with precision by what modes they are discharged: but it is admitted that the erectile villi of the stomach become ruddy during gastric digestion, and that the peristaltic motion of that viscus is accompanied by tumefaction of the spleen, which is likewise composed of erectile tissue.*

• We have all a right to indulge in conjectures respecting the use of the spleen. My conjecture is, that the spleen is the erectile organ of the pancreas. Every other erectile organ is destined to give intimation of some want to the apparatus which is destined to supply that want: and there is not another gland in the whole body, secreting a fluid analogous in its uses to that of the pancreas, and required to do so upon the presentation of a foreign substance, that is not provided with an erectile organ to give notice that a proper occasion has occurred for an emission. Unless, therefore, the spleen is the erectile organ of the pancreas, both present anomalies. As the spleen is the largest mass of erectile tissue, so the pancreas is the largest gland of its order in the system; and the former is placed in the most convenient situation for receiving notice that the pancreatic secretion will be required. The notice is given, as in other cases, by mechanical friction, which is occasioned, in this instance, by the extensive movements of the stomach, engaged in the labours of chymification.

Lust excites salivation; and it is a vulgar remark, that women with restless protrusive tongues are lascivious. Highly seasoned food, which stimulates inordinately the erectile apparatus of the salivary system, tends likewise to stimulate the organs of generation: and the two kinds of sensuality depending upon these excitements, are apt to be associated together in the same individuals. Pain in the teeth is a torturing accompaniment of pregnancy: it does not arise from disease of their osseous structure, but from excessive irritability of their papillæ, the natural office of which seems to be to solicit a supply of saliva whilst the morsel is grinding between the teeth, in like manner as the papillæ of the tongue do when it is under the softer trituration of that instrument. Pregnancy is also accompanied by a salivary flux, by eructations and vomiting of a limpid fluid from the stomach, and by longing; the unwonted manner in which the digestive organs are excited, in sympathy with uterine demands of a totally different nature from those experienced by the unimpregnated female, causing an extravagance of appetite,—a craving for articles, which would not have been suggested by a healthy stomach, influenced only by its virgin modes of excitation.

When the uterine functions are deranged in chlorotic girls, the erectile papillæ of the mouth and stomach can not only bear, but imperatively demand such coarse and unnatural stimuli, as would be most offensive to a person in the enjoyment of uterine health. In suppression of the menses, the salivary glands, as well as the mammæ are sometimes morbidly irritable. Dyspepsia is usually the most distressing symptom of polyypus uteri. When the fœtus dies in utero, the salivation and vomiting immediately cease, which, as well as their occurrence at an early stage of pregnancy, shows that it is from the functional activity,* and not the increased bulk of the womb, that these sympathies arise. Preternatural excitement of the mammary glands, by a sudden suppression of milk,

* A fœtus may arrive at maturity, although it has no connexion by a placenta and umbilical cord with the mother; the only possible source of nourishment being the liquor amnii. This fluid, it would appear, is absorbed by the skin, which thus performs the same office as the skin of certain aquatic animals, and which, in a young fœtus is scarcely distinguishable by its characters from its continuation along the internal alimentary canal. If, then, the liquor amnii is an alimentary secretion from the uterine membranes, whilst the placenta is, perhaps, the erectile excitant, communicating wants from the fœtus to the mother, is it to be wondered at that the stomach should sympathize vividly with the vast change of employment given to the impregnated uterus? Is the thymus gland the salivary organ of the fœtus, pouring its assimilating leaven into the thoracic duct by its lymphatic vessels, in order to render the absorbed liquor amnii fit for entering into the animal organization?

is apt to induce ptyalism; and a powerful mean of reducing hernia humoralis is eliciting a copious excretion of saliva and gastric juice by emetics.

In cases of atony of the digestive organs, the tongue acquires a polished appearance; and diseased spleen is accompanied by paleness of the lips, and a satin-like surface of the skin, depending obviously on want of tone in the erectile tissue. Nausea excites salivation; the stomach secreting an excessive quantity of gastric juice in order to effect the digestion of its unwholesome contents, and this being accompanied by a sympathetic discharge from the salivary glands of mastication. Gastrodynia depends upon morbid irritability of the erectile tissue of the digestive organs, and is resolved, by an emission of gastric fluid from the secreting glands, in the same way as an erection of the penis is resolved by an emission of semen. The secretion of gastric juice is accompanied by a copious flow of saliva from the masticatory glands, and the relief follows equally whether this is rejected or swallowed. It is partly from its virtues as a sialagogue, that tobacco gives temporary relief to pain of the stomach; the salivation occasioned by its use being productive of a sympathetic secretion of gastric fluid.

Mumps are accompanied by inflammation of the mammæ in girls, and the testicles in boys. A woman whose right breast was extirpated for scirrhus, and who now labours under uterine disease, is at the same time affected with bronchocele, which always increases in bulk during her painful menstruations. Iodine reduces bronchocele, and also causes wasting of the mammæ and testicles. Organic disease of the spleen, accompanied by dyspepsia, is more apt to occur when the uterus becomes disordered at the cessation of the menses, than at any other period. Puerperal inflammation of the womb is so uniformly attended with disease of the spleen, that the latter affection may be regarded as part of the pathology of the former. The thyroid gland sometimes inflames, upon weaning a child, to such a degree as to impede deglutition.*

A case of œsophagitis, simulating the symptoms of hydrophobia, was accompanied by a simultaneous enlargement of the salivary glands, thyroid and pancreas:† and when the salivary glands have been long impaired by the use of tobacco, the pancreas is apt to become scirrhus.

We are thus brought to the specific law, that the whole of the salivary and sexual organs, which perform analogous

* Lond. Med. and Phys. Journal, No. 342. p. 165.

† Medico-Chirurg. Review, No. 10. p. 655.

functions, resemble each other in structure, and sympathize with each other in action.

3. *The Conductors of Nutriment.*

The different portions of the alimentary canal, the lacteals and lymphatics, and the blood-vessels, constitute a system of organs employed in conveying nutritious matter to the arterial extremities, in order that it may there deposite its various products. The manner in which this function is performed seems to be by a sort of suction; the pressure of consecutive parts of the tube being alternately diminished and augmented, so as to occasion a progressive movement of the ingesta. Such is certainly the case in the alimentary canal: and since the thoracic duct, when tied, and punctured below the ligature, discharges chyle in a full jet, it is obvious that the motion of that fluid cannot be entirely dependent upon any power of attraction excited by the right side of the heart. It is equally obvious that there is no *vis a tergo* derived from the left ventricle capable of acting upon the distal extremities of the lacteals. The motion of the chyle must, therefore, be the result of an independent action of the lacteals and thoracic duct themselves: and it is difficult to conceive any mode of propulsion different from that of the intestinal canal, which shall be adequate to produce such an effect. The same reasoning is applicable to the lymphatics both of the serous and tegumentary surfaces, and of the solid substance of the body; and although the venous circulation still affords matter of controversy to physiologists, it appears to me demonstrable that it is neither effected entirely by the propulsive nor by the attractive powers of the thoracic viscera.* It is by alternately expanding and contracting, that the heart itself transmits the blood through its cavities: and the empty uncollapsed state of the arteries after death proves that these vessels discharge their contents by the contraction of their coats, followed by an expansion; whilst the existence of valves at the origin of the aorta, indicates that their contraction is synchro-

* Apply a tourniquet above the elbow so as to compress firmly both the veins and artery; and select a portion of vein upon the back of the hand that has no branches. Apply the fore and mid fingers upon the upper extremity of this portion, and while the fore finger retains its place, draw the mid finger down the vein so as to deprive the included part of its blood, then lift the mid finger, and the vein instantly becomes as turgid as if no tourniquet had been applied. Here both the propulsive and attractive powers of the heart and chest are intercepted by the tourniquet; and the motion of the blood has no connexion with atmospheric pressure, because it takes place in whatever position the arm is held. In short, it depends on the action of the vein itself.

nous with the dilatation of the left ventricle. Even in the arteries, although the propagation of consecutive movements is much more rapid along them than along tubes of a more yielding nature, such as the intestinal canal, still these movements are progressive. This must be the case in dilatable tubes; and, accordingly, when one finger is applied over the sub-clavian, and another over the radial artery, the pulse is found to be appreciably later at the wrist than at the clavicle.

Now, the whole of these organs consist of tubes, furnished with annular fibres, generally of a whitish colour, capable of expanding and contracting, and therefore entitled to be regarded as a species of muscles.* They are lined internally with a membrane, which secretes a defensive substance, gradually changing in its properties, according as the matter with which it is liable to come into contact is more or less completely assimilated to the living fibre. This membrane forms valves, by means of which the progressive advancement of the ingesta is secured, and between which the intervals are greater or smaller, according as the tubes are more or less capable of resisting dilatation from the varying quantity of their contents. Such is the case not only with the whole series of canals by which the ingesta are carried from the mouth to the arteries, but also with the lymphatics, which obtain their supplies either from the surfaces of the membranes, or from the component substance of the body itself. Hence, they all resemble each other in structure.

When liquids are injected into the veins of a dog, he instinctively performs an act of swallowing; and the whole arterial system is stimulated to increased activity; the fauces on the one hand, and the arteries on the other, being portions of the apparatus by which nutriment is conveyed to its final destination. In like manner, the pulse is accelerated during the ordinary process of digestion, and diary fever is excited by a surfeit. Increased action of the secernents, in order to supply the waste occasioned by profuse evacuations, is accompanied by an excessive activity of the alimentary absorbents. "Such," says Dr. Mason Good, "is the wonderful sympathy that pervades the entire frame; and that runs more particu-

* Send a chemist to examine the roof of a cotton mill, and after applying his tests he will pronounce the bars by which it is supported much more akin to a gridiron than to joists, because they are not composed of wood. But, as the architect will still insist that they are, to all intents and purposes, joists, so I insist that fibres communicating loco-motion by their contractions are muscular, whatever stuff they may be composed of, and whatever effect unnatural stimuli may have upon them. Blood-vessels were not meant to circulate needles and oil of vitriol.

larly through that extensive chain of action which commences with the digestive, and reaches to the assimilating organs, constituting its two extremities."* Nurses are often affected with excessive thirst at the moment the infant lays hold of the nipple, and before any evacuation requiring a new supply of liquids has taken place: and conversely, a copious draught of gruel excites an immediate secretion of milk.

In performing sanguineous transfusion, it is found, that when the quantity of blood injected is so great as to incommode the vascular system, an effort to vomit is produced. The final cause of coughing and asthma is to evacuate the thoracic viscera; and it is much more frequently the blood-vessels than the air-vessels that require this mode of evacuation. In hooping-cough, the expulsive effort is extremely powerful; the chest repeating its spasmodic contractions so frequently after each expansion, that a most efficacious repulsion of blood must take place against the current in the veins of the system. The natural action of the veins being thus opposed, or even reversed, a reverted action of the stomach accompanies it, and the fit generally terminates with vomiting. For the same reason vomits are useful in asthma; the reverted motion of the stomach causing a retrograde effort in the veins, which, being deducted from their progressive action, and aided by the compression of the chest, relieves the pulmonary vessels of their excessive load. Small quantities of tartar emetic injected into a vein excite immediate vomiting. This cannot arise from local irritation of the stomach, because it takes place when that viscus is removed and a bladder substituted. We may suppose that the vein is organically sensible that it has admitted a deleterious substance; and that its repugnancy to it is propagated by sympathy to the fauces, which performing their part of a process of vomiting, call into sympathetic action the muscles that were wont to assist the stomach in performing its part of the same process. The collapse of the veins which accompanies sudden hæmorrhage is rapidly followed by an increased contractile effort of their muscular tunic, in order that a sufficient resistance may be given to the arterial extremities, for preventing a fatal continuation of syncope. This effort, by which the veins press the

* Stud. of Med. Vol. III. p. 204.—This author, in his views of sympathy, the general scope of which I have adopted, appears to me to lay too much stress upon the association of the extremities of a chain of action. The same sympathy pervades the intermediate links equally with the extremities; but in many cases the latter are most exposed to observation; and in some there are no intermediate links similar to those that sympathize at the extremities. Such is the case with the sphincter muscles.

blood back against the arterial current, is sympathetically attended with vomiting; which, accordingly, is always regarded as an index of reaction having commenced. Upon the same principle, when the fauces are lightly tickled, so as to contract upon the irritant in order to expel it, vomiting is excited: but when they are so firmly pressed as to prevent them from contracting, the stomach is not affected.

With regard to permanent strictures and dilatations, constituting the principal structural diseases of the muscular tunic of the nutritive tubes, I am at a loss for materials to enable me to determine whether or not these are apt to occur simultaneously in the different organs pertaining to this system. I think, however, we are fully prepared to admit the specific law, that these organs resemble each other in structure, and sympathize with each other in action.

4. *The Tegumentary System.*

Through the integuments foreign matter is absorbed and excreted, and communicates impressions, either organic or sensitive, to the central masses of the nervous system. The extremities of the organs performing these functions might be liable to suffer injury from the various substances to which they are exposed; and to protect them from such injury may be regarded as the specific function of the tegumentary membrane.

The rete mucosum, by which the cuticle and colouring matter, constituting the defensive apparatus of the skin, seem to be generated, corresponds with the mucous surfaces of the internal canals, viscera, and cavities; and the sebaceous glands, which are processes of the rete mucosum, correspond with the follicular glands of the mucous membranes, of which they in like manner are processes. The papillæ containing the sensitive organs of the skin and tongue correspond with the villi of the alimentary canal, and both are endowed with erectile properties. The perspiratory vessels of the skin, which terminate under the cuticle, or at the bottom of the sebaceous follicles, correspond with the exhalents of the lungs, and with the secernents of the large intestines and kidneys;* whilst its absorbents correspond with the lacteals of the small intestines. The defensive apparatus is fully developed throughout the whole tegumentary system; but of the other three sets of organs some are more conspicuous in certain parts than in

* The kidneys bear a close analogy to the cutaneous follicles, the urine being discharged from the arterial extremities into the tubuli uriniferi by transuding through their mucous linings, precisely as the liquid perspiration is thrown into the follicles of the skin, whence it oozes out in drops.

others, where, however, the rudiments of them are still discernible. Thus, in the tongue, the sensitive predominate over the other organs: in the skin the sensitive and excretory predominate over the absorbent: in the small intestines the sensitive and absorbent predominate over the excretory: and in the lungs, kidneys, and, perhaps, the large intestines, the excretory predominate over the rest. These modifications render the sympathies of the tegumentary system somewhat partial; those portions which resemble each other most nearly in structure and function, being the most apt to sympathize together. At the same time, the intimate connexion subsisting amongst all its component organs, prevents any of them from being completely exclusive in the determination of their sympathies, which are thereby rendered extremely intricate. As my limits preclude a minute investigation of this extensive field, I shall only examine some of its more prominent features.

Arsenic is too powerful an irritant to have its lesions confined to any one set of organs contained in the mucous membranes: accordingly, when received into the stomach in quantities not sufficient to produce sudden death, it excites inflammation of the mucous surfaces of the alimentary, respiratory, urinary, genital, and lachrymal passages, and occasions an eruption over the skin. Colchicum injected into a vein, the defensive membrane of which is adapted to a conductor of nutriment,* excites, in an especial manner, inflammation of the internal surface of the veins, and of that portion of the alimentary canal in which the absorbents chiefly prevail. Blisters applied to excoriated surfaces, so as to irritate the sebaceous glands, produce inflammation of the urinary membrane; and when we allay the irritation of the skin by means of poultices and fomentations, the strangury is sympathetically allayed. A sinapism applied to the side of a lady, having a very irritable skin, produced urticaria at the flexures of the joints, and upon the forepart of the neck, where a blister had been applied some months previously. Violent erysipelas of the head and face, accompanied by general irritation

* The skin, after birth, comes into contact with substances that are absolutely foreign to it in their nature; and, therefore, its secretions are cuticle, nails, &c. The inside of the alimentary canal meets with substances which are still foreign, although gradually approaching towards animalization: its secretion is a semi-liquid mucus. It has been argued that the blood, and even the chyle, possess vital properties; and the internal surface of the vascular system is defended by a fluid which physiologists hesitate whether to regard as mucus or serum. Lastly, the surfaces of those living solids, which are only subject to come into contact with each other, are merely defended by a serous exhalation.

of the skin, was excited on two occasions in the same patient, by the application of a gum ammoniac plaster to the knee. Small-pox, though inoculated at a single point, affect the whole of the rete mucosum, and also the mucous membranes. Cow-pox, in like manner, but in a slighter degree, involve the entire rete mucosum in sympathetic irritation; hence, by re-inoculation on the fifth day, an advanced pock is produced, because the skin had been previously passing through the successive stages of the disease, but a local increase of the excitement was necessary to prevent the inflammation from going off by resolution. In scarlet fever, the papillæ of the skin, tongue, and fauces are inflamed; and the alimentary canal is peculiarly apt to sympathize, because it abounds in erectile villi. Irritation of the papillæ of the mouth, particularly the pulps of the teeth, during dentition, occasions papular eruptions and affections of the alimentary canal. Measles seem to affect the excretory apparatus of the skin, which is expanded over its whole surface, but is most fully developed in the sebaceous glands: hence, the sympathies of this disease are communicated to the respiratory and lachrymal membranes, which are peculiarly adapted to excretions. When the follicles of the stomach are irritated by indigestible food, nausea is first excited; then the inside of the mouth, the lips, and the anus become hot and stiff; elevated whorles next appear upon the alæ nasi, temples, neck, axillæ, and groins, where the sebaceous glands are most fully developed; and finally, the entire surface becomes covered over with the nettle-rash. Stone-pock, stye, and other whelks, arise from sympathy with chronic inflammation of the follicles of the stomach. Inflammations of the respiratory and urinary membranes produce respectively catarrhal and gonorrhœal ophthalmia, because those membranes are adapted to excretions. Suppressed perspiration occasions, not only nephritic and pulmonary affections, but inflammation of the excretory apparatus of the alimentary canal, which is situated chiefly in the large intestines: hence, dysentery.

In order to avoid unnecessary prolixity, I must now take it for granted, that the sympathies I have adduced, together with many others, which will readily occur to every person who has paid attention to the pathology of the skin, are fully sufficient to establish the specific law, that the different portions of the tegumentary system, which perform similar functions, resemble each other in structure, and sympathize with each other in action.

And I trust the induction has now been carried sufficiently far to warrant the conversion of the specific conclusions, seve-

rally obtained from the four classes of facts which have come under review, into the general law, that *organs, performing similar functions, resemble each other in structure, and sympathize with each other in action.* If, however, a single incompatible fact can be brought forward, this law must be at once abandoned, as derived from defective data. Now, in my examination of the subject I have not stumbled upon any such fact; on the contrary, I have invariably found a correspondence, both in function and structure, pervading those organs which are the most apt to sympathize together in their actions.

Thus, a flow of tears frequently accompanies micturition; the lachrymal and urinary bladders* being similar reservoirs for excretory fluids elaborated by similar glands. Vomiting sometimes attends the concluding expulsive acts of parturition; the stomach and uterus being hollow muscular viscera, analogous to each other both in function and structure.—Hence, too, the early stages of pregnancy cause fulness of the epigastrium; and uterine derangements excite those spasms and distentions of the stomach and other parts of the alimentary canal, referred correctly by nosologists to the head Hysteria. Contraction of the diaphragm would not enlarge the capacity of the chest, were the ribs not prevented from following its descent by muscles attached to the shoulders and neck: hence, when the right side of the diaphragm is incommoded by inflammation propagated from the liver or right lung, a sympathetic pain affects the right shoulder; and when the heart or left lung is diseased, the left shoulder becomes the seat of the sympathetic pain.† The knee and hip joints act in harmony with each other, their flexions and extensions

* It is from the lachrymal sac that the gush of tears proceeds, and it is prevented by pressing the finger upon the puncta.

† It may be alleged that the distribution of the respiratory nerves affords a more direct explanation of these sympathies than the similarity of function of the antagonizing respiratory muscles. I not only admit the truth of this allegation, but I feel confident that all the cases of sympathy, which I have been endeavouring to embrace within a general law, will, in the course of time, be rendered amenable to a similar explanation. The researches, however, of the physiologists, who have devoted their talents with such eminent success to the elucidation of the functions of the nerves, have not yet been carried far enough to authorize the construction of a complete Theory of Sympathy upon the principle of nervous association: and, as a correct statement of the Laws of Sympathy, derived entirely from the observation of ascertained phenomena, may not only be of use in guiding us ultimately to a sound theory, but may also aid us, in the meantime, in the detection of the primary sources of complicated symptoms, and in the judicious application of remedies to obscure diseases, I have confined my attention exclusively to the links by which the phenomena of sympathy are connected with each other, without attempting to trace their further connexion with other more general principles of the animal economy.

being synchronous; hence, the sympathetic pain of the knee in morbus coxarius. The elastic white ligaments of the joints, which maintain the included parts in a state of compression, augmented or diminished in obedience to local circumstances, without any suggestion of the will, resemble in this respect the hollow viscera, and like all fibrous tissues are stimulated by cold: hence, coldness of the feet, in which these principally abound produces spasmodic pains of the bowels and contraction of the bladder. The pericardium may be regarded, both from its function and structure, as a large bursa mucosa: hence, metastatic* attacks of gout and rheumatism. The brain, the spinal marrow, and the ganglia of the sympathetic nerves, resemble each other in function and structure; hence, powerful mental emotions excite a particular feeling at the præcordia; and reciprocally, inflammation propagated from the diaphragm to the semi-lunar ganglia causes phrenzy: intense thought deranges the functions of the stomach; and stomach complaints reciprocally affect the mind: irritable females are subject to violent periodical headaches, which are accompanied by excessive nausea, and generally vomiting: † morbid action of the ganglia of the intestinal plexuses causes torpidity and irregularity of the bowels; and by sympathy with the spinal marrow, chorea is often produced.

Kilmarnock, 18th January, 1828.

II. *Case of Dropsy, occurring after Scarlet Fever, treated by Blood-letting; with Remarks.* By WILLIAM AUCHINCLOSS, M. D. Member of the Faculty of Physicians and Surgeons, and One of the Surgeons to the Glasgow Royal Infirmary.

3d DEC. Agnes Smith, aged eleven, stout made, and previously healthy, is twelve days convalescent from a mild attack of scarlatina. After exposure to cold, and, as her mother thinks, eating a too hearty breakfast, had a shivering fit yesterday, about breakfast. Slight pyrexial symptoms succeeded, with vomiting, and pain in the forepart of the chest. The

* Metastasis seems to arise from the organ primarily affected having, when at the acmè of its disease, communicated a sympathetic affection to another similar organ, in which the disease, once introduced, runs an independent course.

† A lady, who is very accurate in observing the progress of her ailments, assures me that she can foretell, from the seat of the headache, whether she is to vomit acid matter or bile: in the former case, the pain affects the left side of the head, in the latter, the right; as if the right and left semi-lunar ganglia were respectively associated with distinct hemispheres of the brain.

vomiting soon ceased, but the uneasiness, although much less severe, still continues. It does not, however, prevent full inspiration, and is chiefly troublesome when she coughs or moves herself. Some swelling of the face since the morning. Bowels slow. Pulse about 90, calm. Cuticle in a state of desquamation, but surface rather warm, and particularly dry to the touch. Thirst moderate; urine scanty.—*Scrobiculo cordis sinapismus. Pulvis purgans statim.*

4th, Physic operated well. Pain of chest all but gone. No other complaint. Countenance as much swollen as yesterday, but no apparent swelling elsewhere. Skin dry, and urine still rather scanty.—*Vespere balneum tepidum. Cras mane pulvis purgans.*

6th, Nine o'clock, A.M. A short time after taking the second purgative yesterday morning, the vomiting returned, and has continued at intervals since, notwithstanding a repetition of the sinapism, &c. Much restlessness and insensibility for the last three hours. At present perfectly blind. Pupils motionless, and greatly dilated. Frequent rolling of the head, with tendency to convulsions. Breathing hurried, and much oppressed. Pulse quick and wiry. Countenance more swollen, with some swelling also of feet and lower half of legs, but not the slightest pitting on pressure. Secretion of urine nearly suppressed. A scanty evacuation yesterday forenoon—none since.—*Statim V. S. Vesicatorium nuchæ, et repetatur sinapismus.*—Five o'clock, P.M. Was bled to ʒviiij , with improvement in the pulse, which immediately became more distinct. Has lain in a quiet state since, and has had no return of vomiting till within the last hour. Breathing still much quicker than natural, but not in the least oppressed. One copious stool by an enema at mid-day. Has voided some urine of a muddy appearance. Still perfectly insensible, and pupils dilated to their utmost.—*Rep. V. S.*

7th, Eleven o'clock, A.M. She became faintish when about ʒxij of blood had been taken in a full stream, and on fairly recovering from this state, spoke correctly, and was able to discern objects presented to her. Passed a good night, and slept most part of it. Complains of no uneasiness. Pupils still motionless, and greatly dilated, and sight much dimmer than natural. In other respects perfectly sensible. Urine much increased, and less muddy. No recurrence of vomiting since the second bleeding. Swellings less, particularly that of face. Pulse natural. Skin cool, and rather moist. Took some porridge to breakfast with relish. No stool since the injection. Blister discharges well.—*Repetatur enema. Mane pulvis purgans.*

8th, Full alvine discharge by the powder. Urine in good quantity. Pupils slightly contractile, and vision much clearer than yesterday. Swellings rapidly disappearing. Otherwise convalescent.

9th, Since last report, purgative twice repeated with effect. No vestige of swellings visible. Pulse, appetite, and sleep natural. Pupils more contractile; and, to-day, for first time, considers her sight perfect. Till this period, it was observed to get progressively more distinct in proportion as the pupils regained their natural contractility.

Remarks.—The preceding is rather an instructive case. It is, perhaps, more severe than any of a similar description on record, in so far as the determination to the head and chest is concerned. The good effects of blood-letting were sudden and well marked, no remedy of any consequence having been used previously. The progress and intensity of the disease seemed evidently to have been influenced by the first bleeding, for, immediately after this, as noticed in the report, the pulse became more distinct, and the breathing less hurried and oppressed. The extreme restlessness and vomiting were also quieted by it. From a continuance of bad symptoms, I was induced to repeat the bleeding in the course of a few hours after, and then carried it to the extent of ζxij , the salutary effects of which were instantaneous. The blister, purgatives, &c. were doubtless of themselves so far beneficial, but were had recourse to merely as auxiliaries to blood-letting. In truth, but for the early and decided use of the lancet, on the accession of bad symptoms, it is to be feared that the disease would very speedily have proved fatal. After the second bleeding she spoke intelligibly, and soon fell into a sound and refreshing sleep.

At the commencement, the urgent symptoms appeared to affect the head and chest, and that nearly in an equal degree. This is rather an unusual occurrence, for, we generally find in such cases, that of the three cavities of the head, chest, and abdomen, only one is affected at a time. At an early stage of the complaint, the girl laboured under slight pain of the chest, evincing of course, the great tendency at that period to pulmonary congestion; whilst the vomiting, on the other hand, may be considered as characteristic, in some measure, of incipient congestion in the brain.

This species of dropsy has been long known to the profession to be often connected with an inflammatory affection of some internal organ, most frequently the lungs. Burserius, who has considered it at some length, informs us that the Florentine physicians, early in the last century, were the first

to describe its true pathology, and to recommend blood-letting for its cure. In an epidemic scarlet fever, which appears to have prevailed at Florence, about the year 1717, some of the convalescents became affected with anasarca swellings. The disease was observed to prove very speedily fatal in all those cases where pectoral and other unfavourable symptoms occurred, and on examination after death, "the lungs, pleura, intercostal muscles, diaphragm, kidneys, and intestines," were found to have suffered more or less from previous inflammation. They were led, therefore, to view the swellings as merely symptomatic, and peripneumony as the primary disease. In succeeding cases they practised blood-letting, once or oftener, as circumstances required, and no one is said to have died who had been thus treated.*

Burserius describes this affection as of two kinds—the *œdema calidum* and *frigidum*, a distinction first noticed by the above physicians, and which appears to me of considerable practical importance. The former species, characterised by the swelling being hard and tense, and not retaining the impression of the finger, with difficulty of breathing, pungent heat of surface, thirst, and scanty secretion of urine, he considers to be an inflammatory affection, and curable by blood-letting, &c.; whilst the latter, on the other hand, being soft, and resembling in appearance common œdema, with loss of appetite, and other symptoms of debility, is to be treated by tonics and diuretics.

Plenciz, a German physician, describes this disease in a treatise published in 1760. He considers it also to be inflammatory, and recommends bleeding in cases where the head is chiefly affected. He informs us that more people died of it at Vienna than of the original fever.

The most minute, and, at same time, best account of this disease, which, perhaps, has yet appeared, is by Dr. Wells. In 1806, he brought the subject before the Society for the Improvement of Medical and Chirurgical Knowledge, in a paper which was afterwards published in the 3d volume of their Transactions. In his views of its pathology, he entirely coincides with Burserius. He never had practised blood-letting, yet he strongly recommends it to be had recourse to early, in all cases where symptoms of danger occur.†

Within the last ten years, the attention of the profession

* Burserius's Institutes, translated by Dr. Brown, vol. ii. p. 420.

† It may be mentioned that Dr. W. when he read his paper, was not aware of Burserius' description of this disease, and in a postscript acknowledges having met with it only a short time before his own was published, in 1812.

has been frequently directed to this subject, in a succession of papers in the *Edinburgh Medical and Surgical Journal*, by Drs. Abercrombie, Lewins, and others.* The first of these gentlemen has certainly the merit of having revived the practice of bleeding, which is now more generally in use than for many years before he wrote.

It is rather curious that Burserius, whose *Institutes of Medicine* were published in 1798, is the only systematic author, so far as I know, who has considered this disease of sufficient importance to merit a description. Neither Cullen, Thomas, nor Mason Good say much concerning it. Can it be possible that they should never have met with it but in the mildest form?

I regret that I did not examine the state of the urine in this case. As stated in the report, it was at first rather scanty, and of a muddy appearance, and became almost wholly suppressed as the disease advanced. In three cases of a similar nature, however, which occurred in the same family, in the spring of 1818, under the care of Mr. Stewart, of Paisley, from whom I learned the particulars, the urine coagulated at a very low temperature. Convulsions, with other unfavourable symptoms, were present in the whole of these cases. They were treated by blood-letting, and, with the exception of the oldest, who was, in other respects, a delicate child, very speedily recovered. As in the case narrated above, the urine was voided in considerable quantity soon after the violence of the disease had been overcome by the use of the lancet.

The dilated and motionless state of the pupil, with the insensibility to light, on the appearance of bad symptoms, clearly point out how much the disease affected the brain. In those cases of scarlatinous dropsy, in which the head is the principal seat of the disease, this species of amaurosis is a common symptom. It occurred in two severe cases detailed by Dr. Wells.† It takes place suddenly, and is, perhaps, one of the most positive signs of great congestion within the skull. In this respect, therefore, it seems to differ from that which ensues on an attack of acute hydrocephalus, for, in the early stages of that disease, it is much more common to meet with a contracted pupil, than one in a state of dilatation.

The sudden restoration of sight which took place after the second bleeding, is rather remarkable. In this circumstance

* See *Edin. Med. and Surg. Journal*, vols. xiv. xv. and xvi.

† A few years ago, Mr. McKenzie met with a very interesting case of this kind, in a boy, nine years old. Vision was perfectly restored after blood-letting, blistering, and free purging.

we have a striking illustration of the good effects to be derived from an early recourse to blood-letting, in cases of amaurosis dependant on congestion.

Respecting the efficacy of diuretics, I have little to add from my own experience. Dr. Blackall, in his valuable Treatise on Dropsies, published in 1813, has detailed a number of cases of this description, with a view to show the great superiority of digitalis over every other means of cure. Of this medicine, he says, that he never knew of any instance where it failed, when properly exhibited; and further, that he considers it "equal to almost any emergency short of that destruction of parts which admits of no cure." The whole of the cases, with a single exception, are said to have yielded readily to it. But, in this case, although the medicine was continued to the extent of affecting the pulse, the symptoms were rather aggravated than benefitted by its use. Dr. Wells, on the other hand, objects to diuretics. Indeed, he goes the length of saying that they may prove hurtful. He appears, however, not to have given them a trial, and, of course, his opinion in this respect, should have but little weight. It is to be remembered that this affection, as it most usually occurs, is so very slight and transient in its nature, as seldom to require any thing more than purgatives for its cure. Nevertheless, in the more severe cases, with determination to one of the three cavities, I am inclined to think that they are serviceable only as auxiliaries to blood-letting. In the 14th volume of the Edinburgh Medical and Surgical Journal, Dr. Gairdner details a case in which the disease rapidly disappeared after the application of a few leeches, different diuretics having been used previously without the slightest effect. Other instances of a similar nature, which have occurred within my own knowledge, might be adduced, were it not unnecessary to say more on a subject, on which I should conceive medical men are pretty generally agreed.

III. *Mortality of Children.*

MR. ROBERTON'S Treatise on this subject* has already gone the round of nearly all the Medical Journals, and, so far as we know, has been very favourably received by the profession.

* Observations on the Mortality and Physical Management of Children. By John Robertson, One of the Surgeons to the Manchester Lying-in-Hospital. London. Longman & Co. 1827. 12mo. pp. 311.

The information contained in it does great credit to the industry, perseverance, and general talents of the Author.

The volume is divided into two parts, and as the second, comprehending the physical management of children, has chiefly occupied the attention of our brother reviewers, our remarks shall be confined to the first part, which we cannot help thinking the more interesting of the two. This part is divided into nine sections, and treats wholly of the mortality of children.

The general remarks, in section first, concerning the great proportion of deaths in infancy being incidental, and not designed, might have been spared; for, we question if any sane individual thinks differently from the author on this point. In section second, he gives a short account of the origin and progress of bills of mortality, from the time of Henry the Eighth to the present day; and here he pays a well merited compliment to the late Dr. Percival, of Manchester, for his acknowledged accuracy and great attention to this subject.

Sections third and fourth will be found particularly useful and interesting to the medical statist. They contain various tables, showing the rate of mortality under ten years of age, in different manufacturing towns and agricultural parishes. The mortality in the former is said to exceed that in the latter by 15 or 20 per cent. The author very properly ascribes this difference to the greater proportion of the operative classes being resident in manufacturing towns, and to the well known circumstance that their children are never so well fed and protected as those of a country population. In large manufacturing cities, as Glasgow and Manchester, more than one-half of all the deaths are children under ten, while in the agricultural villages, and in towns where the operative classes are not numerous, those under this age appear to form little more than one-third of the whole.

Here, however, we must remark, that the author's observations and tables are taken from the registers of the dead, and hence, give the average mortality under ten, not as compared with the population under ten, but with the number of deaths, at all ages, above that period of life. Such data cannot show accurately the value of infantile life, nor give a correct notion of the comparative mortality of different infantile diseases. These can only be obtained by comparing the number of deaths under ten, with the number of births, which, indeed, our author in his preface admits, would furnish preferable data; and although it may be true, that at present "it would be next to impossible to ascertain the number of births with

accuracy," from many of the baptisms not being entered in the public registers; still, until this can be obtained,—and we look forward to the period when it will be so, at least with as much accuracy as is the number of deaths at present,—we have no certain method of finding out the actual mortality under ten years of age.

According to the table at page 12th, drawn up from the London bills of mortality, the average total per centage of deaths, in thirty-five years, under the age of ten, is 44.72; while, in Liverpool, it is 48.11; in Glasgow, 54.75; and in Manchester still higher. Now, considering the vast increase which the population of London is continually receiving from the influx of strangers above this age, it is evident that the rate of mortality deduced from these tables for this period of life, must be quite erroneous. We are inclined to believe, that were the deaths in infancy compared with the births, the proportion would be found higher in London than in any other city in the empire. The old calculation, that one-half of all born, perished under seven, is, we suspect, still not very far from the truth. But we must quote our author's explanations concerning these London tables:—

“In the London table, it is shown, that on an average, 44.6* in the hundred of the annual deaths in that city, are under the age of ten. The reader is not thence to infer, that precisely 44.6 per cent. of all that are born in London die under that age. Were the births and deaths equal, and the population stationary, this would be the case; but as the population, not only in London, but in all the places to which the different tables refer, is frequently varying, the mortality at all ages, as it appears in the registers, does not show exactly, the probabilities of life, though, perhaps, it does so with sufficient accuracy, for the purposes of medical statistics.” P. 15.

We cannot agree with this conclusion of our author, and when we consider the additional source of error, in the fact, that “the London bills of mortality include only such as are buried with the rites of the Established Church, Dissenters, Jews, and others, many of them of the poorest class, in which the rate of infantile mortality is very high,” being omitted, the data furnished by the table at page 12th, must be taken with very great latitude.

In section 5th, “On the comparative mortality of children, before and since the commencement of the present century,” our author corrects the error into which the late Dr. R. Watt, of this city, had fallen, in supposing, that, at the time he made his observations, (1812) several years after the general adoption of vaccination, the mortality among

* The number in the table at p. 12, is 44.72.

children under ten was as great as it had been thirty years before, when nearly one-fifth of all that were born perished of small-pox. He was led into this mistake by not discriminating between the per centage of deaths and the actual mortality. From the tables annexed to his treatise on chincough, and which are copied into Mr. Robertson's work, it would appear, that in the six years ending with 1812, the deaths under ten were 2 per cent. more than in the six years ending with 1789; and Dr. Watt expresses, in very strong language, his astonishment that it should be so; not perceiving, that in the former period the actual number of deaths in proportion to the whole population, had diminished very greatly, and, of course, that the mortality under *ten* must have diminished also, whatever the per centage of deaths may have been.

"In the year 1783," Mr. R. remarks, p. 46, "the per centage of deaths under ten, for Glasgow," according to Dr. Watt's table, "is 53.48; and the annual mortality of the inhabitants, at all ages, one in 26.7. In the six years preceding 1812, the per centage of deaths under ten is 55.49, and the annual mortality at all ages, one in 40.8. Here the relative proportion of deaths under the tenth year, is greater in the period of 1812, than in that of 1783; and yet on account of the very diminished ratio of the annual mortality of that city, the actual mortality under *ten* in 1812, is nearly one-third less than it is in the period for 1783."

"That the actual mortality under ten is universally less than it was twenty-five years ago, even allowing that the per centage of deaths under this age, in the registers, remains the same, there are convincing proofs, which depend upon the acknowledged fact of the mortality, compared with the population, being every where diminished."*

This is quite conclusive, and shows the propriety of our former remark, that the actual mortality cannot be correctly ascertained except by comparing the deaths with the births; for, had Dr. Watt had an opportunity of doing so, he never could have fallen into the mistake he did, nor have adopted the opinion which was the consequence of it, viz. that since the introduction of vaccination, certain infantile diseases, and especially measles, have become much more fatal, and that as many children die under ten now as formerly.

This opinion, of the increased fatality of measles since the introduction of vaccination, which was insisted upon by Dr. Watt, and is still believed by many medical men, is impartially considered in the 6th section, which is, perhaps, the

* "On the average of the six years preceding 1803, one of 43.666 died annually in this country; but on the average of the ten years preceding 1811, the mortality had fallen to one of 47.697. This improvement MILNE ascribes principally to vaccination. In 1821, the annual mortality was found to be diminished to one of 52.17."

most interesting part of the work. That more children die of measles now than previous to the introduction of vaccination, there can be no doubt; because a very great proportion who were formerly cut off by small-pox, are now preserved by vaccination, and remain to be affected with the former malady; but that measles has really become more fatal in proportion to the numbers attacked, in consequence of vaccination, or that small-pox really improves the constitution, by "eradicating certain unobserved deviations from health," which was Dr. Watt's opinion, we never believed. On the contrary, small-pox in numerous instances, where it does not prove fatal, leaves behind it a debilitated constitution, and calls into action the latent seeds of other diseases, which, but for it, would probably never have appeared. It is true, however, that since the introduction of vaccination, the deaths under *two* years of age have greatly diminished, while they have increased considerably between two and ten; and yet we do not believe that any one infantile disease has become more fatal in proportion to the numbers attacked, but probably the contrary.

"It is not enough," Mr. R. remarks, p. 55, "to show that more die of measles at present, than died previously to the vaccine period—a consequence to be expected, owing to the diminished mortality from small-pox. It should also be shown, that of a given number of cases of measles, a greater proportion dies now than died any time when small-pox was in full force. Facts of this kind are not adduced, and had there been such in the possession of these gentlemen," (Dr. WATT, Sir GILBERT BLANE, and Mr. MILNE,) "we may presume they would not have been withheld."

Section 8th contains some excellent remarks on infantile mortality at the different seasons of the year, with the whole of which we agree. We may remark, that we should be glad were more attention paid in future to this certainly important part of the subject, not only as regards diseases of children, but also those of manhood and old age.

In section 9th, the author attempts to show, by means of a table, the different ages from one month to ten years, at which infantile diseases prove fatal. This table has been constructed from a register of deaths, which Mr. R. believes to have been kept with much discrimination and accuracy. But if the names of the particular diseases were not furnished by medical men, and it is not said that they were, we must consider it as worthy of but little attention in a practical point of view, except in so far as regards measles, small-pox, or such like diseases, where no mistake was likely to take place. We are aware that the names of diseases in such registers are set down

in the most general terms, and the table before us does not appear to be in any way an exception. For example, there is somewhat more than *an eighth* of the whole deaths marked "Infantile decline,"—a name which serves to designate, among the common people, probably a dozen or twenty distinct diseases; about one-fifth also of the remainder appear to have been caused by "convulsions," which, in the great majority of the cases, were likely to have been merely a symptom. Such as it is, however, this table is certainly better than none at all, and should it but serve to stimulate others to more accuracy in such matters, we consider the author well deserving the thanks of the profession for what he has already done.

We trust Mr. R. will continue his observations on the important topic he has taken up, and extend his researches to the rate of mortality at every age, a subject replete with interest; and, notwithstanding the light which has been thrown upon it during the last fifty years, still susceptible of great improvement.

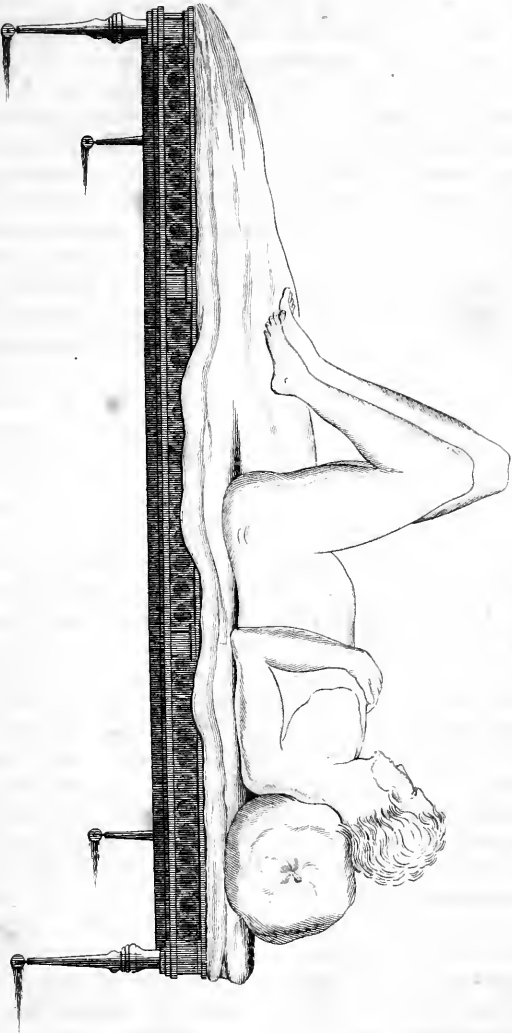
W. W.

IV. *On the Diagnostic Symptoms of the Dislocation of the Femur into the Ischiatic Notch.* By ANDREW BUCHANAN, M.D.

THE dislocation of the femur into the ischiatic notch, although the second in point of frequency of occurrence, is unfortunately not marked by the same unequivocal characters, that enable us to detect the other dislocations of the hip joint. Sir Astley Cooper, to whom every surgeon owes so much of his knowledge of these important injuries, considers the dislocation into the ischiatic notch, as the most difficult to detect. The symptoms, which he considers as characteristic of it, must, I should think, be observed, in every case, where the dislocation actually exists; but so completely do some other affections of the joint simulate the character he has described, that we should fall into error, were we in all cases to adopt it as our guide. A truly diagnostic sign, by which this form of dislocation can be easily recognized and distinguished from all other affections of the joint, is still a desideratum in practical surgery. The mode of examination, described below, appears to me in some degree to supply that desideratum. Perhaps, therefore, the two following cases, and the observations upon them, may not be unworthy of a place in the Glasgow Medical Journal.

The first case is one, in which no dislocation of the femur actually existed, but which was mistaken for a dislocation into

Drawn by G. B. Robinson



Dislocation of left Femur into Ischiatic Notch.

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the ischiatic notch, from its assuming the characters, considered as characteristic of that affection.

During the summer of 1821, a young woman was brought into the Glasgow Infirmary, after falling to the street, from a window on the second story. She was a good deal bruised about the loins, and soon after her admission, her right leg became paralyzed. For these complaints she was treated in the usual way; and they were nearly removed, when I first had an opportunity of examining her. The left lower limb then presented the following appearances:—When she stood erect she could not rest the weight of the body upon it; the toes only touched the ground, the heel being from half an inch to a quarter distant from it; the toes were turned in; the knee was slightly bent and advanced, and the attempt to straighten it produced much pain; the thigh was more oblique than its fellow, with respect to the axis of the body; the trochanter major felt less prominent and farther back than natural, rendering the contour of the thigh less convex than on the opposite side; there was considerable mobility of the joint, but the abduction was most difficult and painful. These symptoms, continuing unchanged for a considerable length of time, and corresponding so much with those enumerated by Sir A. Cooper, as characteristic of the dislocation into the ischiatic notch, I was disposed to think, that the femur might be luxated in that direction. The fallacy of this opinion, however, became at length apparent, the patient recovering the perfect use of her limb, and the thigh resuming its natural aspect, without any attempt at extension having been made.

In reflecting upon the preceding case, it occurred to me, that it would be of much importance in supposed cases of dislocation into the ischiatic notch, to institute a comparison of the limbs, not while resting in the same plane with the body, but when bent to a right angle with the abdomen; the reason of which must be sufficiently apparent, from considering the anatomy of the joint, and the nature of the injury. The head of the femur being thrown almost directly backward, and very little upward, it is clear, that so long as the limbs remain in the plane of the body, there can be very little difference in their relative length; since that difference is only measured by the extent of the displacement upwards. But if the limbs be slowly bent towards the abdomen, the difference in their length must become greater and greater, till it attain a maximum, when the limbs are at right angles with the body; the luxated limb being then shortened by the whole extent of the dislocation backward. I had no opportunity of verifying this reasoning by actual observation, till the occurrence of the

following case, in 1826, and I had then the satisfaction to find, that the mode of examination described above, yielded the only symptoms, which were perfectly unequivocal.

On the 12th of November 1826, I was called to visit a child, three years of age, that had been hurt six days before, by a fall from a chair. How the accident took place, I could obtain no particular account; but the child had never since been able to use the limb in walking, nor, indeed, to stand upright without assistance. When, with the support of her mother, she stood upon the sound limb, the other presented the following appearances:—The toes only touched the ground; they rested in the same transverse line with the metatarsal bones of the other foot, and were a little turned in; the knee was considerably bent, and advanced before the other one. The limb had altogether more the appearance of being drawn up by a voluntary effort, than of being actually shortened. No measurement was made, but the shortening, if any existed, must have been very inconsiderable. The contour of the haunch, and the position of the trochanter, did not appear materially altered, and the head of the bone could be nowhere felt on rotation. The great mobility of the limb rather seemed inconsistent with the supposition that a dislocation existed. The thigh could be bent towards the abdomen with great facility, and seemingly without producing much pain. The abduction and rotation were more painful, and performed with less freedom.

From these symptoms, it was difficult to infer what was the real nature of the injury which had been sustained. All uncertainty, however, was at once removed by placing the patient upon her back, upon a wooden table, and bending both thighs to a right angle with the trunk of the body. The shortening of the limb, which, in the former position, was little perceived, became at once so remarkable, that, I believe, I do not over-estimate it, when I say, that, even in so young a subject, it was more than an inch, the knee of the affected limb resting in the hollow below the condyles of the other one. The trochanter also now felt much farther back, or nearer the table, than on the sound side.

The same evening that I first saw the case, my friend Dr. Watson did me the favour of examining it. He agreed with me in thinking that the femur was dislocated into the ischiatic notch. Next day we consulted with Dr. Young and Dr. Auchincloss, and the opinion of those gentlemen concurring with our own, we proceeded to attempt the reduction. The patient was placed in a sitting posture on a small table, to which she was fastened down by a sheet, and farther secured

by a man standing astride the table immediately behind her. The extension was made by means of a bandage fixed round the ankle, while Dr. Watson lifted the head of the bone over the edge of the acetabulum, by pulling directly outwards a handkerchief passed round the top of the thigh. In the course of a few minutes, the head of the femur passed, with an audible snap, into its socket. The child, in a short time afterwards, regained the perfect use of the limb.

The flexibility of the dislocated limb may not always be so great as in the preceding case, but if the limb be at all capable of flexion, the gradually increasing difference in length between it and its fellow, will serve to point out the nature of the injury. Cases of contusion, or of inflammation of the joint, simulating, like the one first detailed, the appearance of dislocation into the notch may be at once detected by the above mode of examination; for, if the thighs are of equal length, when bent to a right angle with the abdomen, there can be no dislocation.

The same mode of examination is also of use in enabling us to distinguish cases of dislocation into the foramen ovale. There is, however, this difference in the symptoms, that the affected limb, instead of becoming shorter on flexion, becomes gradually longer, for the obvious reason, that the head of the femur is no longer behind the acetabulum, but before it. In a case of this kind which I saw last year, in the infirmary of this city, under the care of Dr. Anderson, the dislocated limb was not at all longer than its fellow, when the measurement was made in the plane of the body, but there was a difference of about two inches, when the thighs were bent to a right angle with the abdomen.

6, South Hanover-street, September 17th, 1828.

V. *Remarks on the Medical Topography of the Parish of Neilston.* By CHARLES RITCHIE, Member of the Faculty of Physicians and Surgeons of Glasgow.

[Concluded from p. 304.]

IN continuing the Medical History of the Parish of Neilston, I now offer some remarks on a few of the diseases which prevailed there in the period of my practice, referring to the appended table for a more general view. In the former part of this paper, the amount of sickness was stated at 1100 cases per annum, or 15 per cent. of the population. Four other

surgeons practised in the district during much of the time embraced in these remarks, and the discrepancy between the number of patients, which, on the above calculation, should have fallen to the care of one individual, and that in the table, proceeds from the former including few, and the latter many of the milder descriptions of sickness; while the table also contains cases, which, in a strict geographical sense, did not occur in the parish, but only in its vicinity. It will be observed that there is a disproportion likewise in the relative number of patients treated in different years, and particularly between that in the first two, compared with either of the five subsequent years: this arises from moral causes peculiar to practice in the country; some of which illustrate strikingly the prevalence of indisposition among what is in general esteemed healthy population. Chronic cases, for instance, crowd in at first on every new practitioner, and again leave him, as their hopes of relief are disappointed. From the number of poor in Neilston, such diseases are always frequent, but owing to the cause stated, the amount of chronic bronchitis, phthisis, cancer, and scrofulous sores and abscesses, in the first year, was 36 cases, while the average for the remaining six was only 12.5. Among most elderly females again, and in a majority of the manufacturing population, some derangement of the functions of the alimentary canal is constantly observed, and by those persons the stranger is also more patronized than the resident surgeon. Such are many cases of hysteria, dyspepsia,* and mimosiis chronica, amounting, in the first year, to an aggregate of 111 cases, and in the others, to an average of only 27 per annum. A similar explanation applies to the cases of dentition; one-half, at least, of all the children between six and twenty months, belonging to the poorer classes, during winter in particular, or in cold moist weather, labour under irritative fever, diarrhœa, or vomiting. Many of these would not, in ordinary circumstances, find their way to a surgeon, but in the situation under notice they apply in great numbers.† It will be remarked, also, that although the mortality is smaller than in winter, the quantity of sickness has been greatest in the summer months. In the country, amusement is sought

* I have taken the liberty to divide this genus, retaining the old term for cases which exhibited more special marks of diminished vigour in the digestive functions; and applying that of mimosiis chronica to cases of derangement of the bowels only, in which the stomach was not particularly implicated.

† A register of the number of persons at three cotton-mills, absent from work on account of indisposition, for more than one day, and kept during twelve months (1825), gave a rate of sickness higher than either the societies or table; 241 out of 631 individuals, or one in 2.6, or above 38 per

without doors; and rheumatism, affections of the bowels, and mild fever, could often be traced to exposure of the individuals to the night dews, after having wrought all day in a heated manufactory, or in the rays of the sun. Cotton-spinners and bleachers, again, always stand or walk when at work, and after some years a varicose state of their legs is a common result; and such legs appear to ulcerate more frequently in summer than in winter. Summer, again, is the season of building and improvement, and hence the increase of contusions and other accidents.

Fever. In the first six months of this report, the weather was cold, wet, and variable; the fevers insulated, arising from cold, or violent physical exertion, and taking either of the following forms:—

A. Catarrhal fever, and after the first week, mild delirium, with an irritable state of the bronchi and intestines. These required the cautious employment of antiphlogistic means throughout; and after the eighth or tenth day, the use of anodynes. When the first stage was completed before confinement to bed, there was, in general, even earlier than the eighth day, rapid compressible pulse, more or less prostration, and coma; and then stimulants were relished and useful.

B. Flushed countenance, violent headach, profuse sweating of the face and hands, a dense white fur on the tongue, followed by sopor, suppression of the secretions, and exhaustion. These bore bleeding well, and were lost without it, most commonly from disorganization of the lungs or brain. In some instances, both in this, and in succeeding years, the symptoms were not so strongly marked, but the general progress and principles of treatment were similar. These forms are varieties of common synochus, which, having its type modified by constitutional causes, situation, or treatment, may be held as the endemic fever of the country. No death from fever happened in the first six months.

In the succeeding six months, the weather was open, and, except in January, remarkably mild. In March and April 1821, the quantity of rain was excessive, and during these months, fever became epidemic near Barrhead. In December, four cases

cent. being reported sick in the period. None of these died, and nearly all their sickness, therefore, must have been slight; but the information which the result gives respecting their physical status, is not the less important, and in the subjoined abstract the infirm health of the females in particular is very conspicuous:—

	Number in Mills.	Sick.	Proportion of Sickness per Annum.
Children,	202	52	25 per cent. or one in 3.88
Adult Males,	142	37	26 do. do. 3.83
Do. Females,	287	152	52 do. do. 1.88

came under treatment. Two were children residing in a low house, with an earthen floor, on an insulated piece of ground, a quarter of a mile below the village of Neilston, having a mill-lead within a few feet of it on one side, and the Lavern on the other; the third was a robust woman, residing also on the edge of the Lavern, but one hundred and eighty feet below the level of the above situation, and two and a half miles east of Neilston. This case began with great constitutional disturbance, severe purging, and pain of belly. Slight diarrhœa continued throughout, but without tympanitis, or hiccup; the skin got harsh and shrivelled, the fauces covered with sordes, and she died on the 24th day. At her death, the family removed half a mile lower on the Lavern, and on the 31st December, her daughter was seized with that form of synochus described at B, in preceding page, from which she recovered. No instance appeared afterwards till February 24th, 1821, when Nisbet, a girl in the house adjoining this patient's, took fever; and on the 28th a woman, named Robison, who had recently removed to the upper end of Barrhead, or one mile below Neilston, was found with muttering delirium, collapsed countenance, pain at the præcordia, slight cough, and rapid pulse, and died March 5th. The disease now assumed the character of an epidemic, near both these patients, but in the former instance it was confined to a girl named Muir, a companion of Nisbet's, who sickened March 19th, and to two individuals in the same row with Muir, who became ill in April; and in the latter, although the number of cases was greater, they were limited to Robison's neighbourhood. Muir and her neighbours lived on the Lavern, three and a half miles below Neilston, in damp ill-aired houses, sunk several feet below the level of the adjoining ground. Robison's house was two and a half miles higher up, on the south side of the public road, at a point corresponding to where the ground rises suddenly into the high district, and on the north-east of a large shallow reservoir, lying north and south, and used by two bleachfields, which stand in a hollow on the north of the road. Two children in this house took fever on the 4th March, Robison's mother on the 9th, her child on the 21st, and on the 24th, M'Donald, a robust girl, and on the 30th, Scott, a stout carter boy, both belonging to one of the above bleachfields, were also found in the disease. In this girl, the first stage was tumultuary, and not relieved by bleeding or purgatives; on the 26th she was oppressed and unwilling to be disturbed; on the 28th she complained of acute pain in the epigastrium and right side; on the 29th the coma became complete, and she died unexpect-

edly on the 30th. The boy was seen on the road complaining of weariness, headach, and sickness, the countenance sunk and jaundiced, the tongue foul, and the pulse feeble and hurried. Up to the sixth day no re-action took place; the skin remained harsh, and easily cooled, and to these were added tenderness of the belly, cough, and slight delirium. The delirium afterwards became violent, with unceasing restlessness, aggravated both by anodynes and stimulants, and he died April 15th (seventeenth day).* At this period, fever had discovered itself in most of the families in the neighbourhood of the two bleachfields, and among several of the workers residing at Barrhead, but in no instance higher up the parish than the above-mentioned reservoir. Robison's house was on the level, and only a few yards east of the northern or leeward end of this reservoir; and the bleachfield which suffered most from fever, was thirty feet below its level, and about fifty yards north of its outlet. Another bleachfield stands on its southern extremity, and two houses are situated on the rising ground bounding it on the west, but neither in these nor in an adjacent village of cotton-spinners, nor any other portion of the upper district, was fever seen, although searched for with some diligence. The disease appeared under several forms:—

1. Cases of slight headach, foul tongue, and wandering pains, existing for a few days with little acceleration of pulse. Some of these proceeded, perhaps, from fear, others from imitation, feelings which add to the number of patients in every epidemic fever, particularly in female communities; but it is believed that others arose from the same causes, which, in more susceptible constitutions, produced severe fever. A solution of Epsom salts and emetic tartar was the only treatment necessary.

2. Cases having no marked forming stage or after-symptoms, except pyrexia and headach; recovering slowly without a perceptible crisis. Small bleedings were serviceable in this form, and the blood was sometimes slightly cupped. In one woman, in the fourth month of pregnancy, abortion took place on the fifteenth day, and in another woman palsy of the left arm occurred on the thirty-first day. The intestinal secretions were much vitiated, and even after the patients resumed

* This boy's companion, a highly robust man, living in the adjoining house to Robison, also became ill March 30th, and at first it was supposed with the same disease. On April 2d, however, he was found with symptoms of enteritis, with this peculiarity, that his skin and blood drawn from the arm were of a deep yellow colour, and on the bowel affection yielding, he had mucous cough and a lingering recovery.

their avocations, digestion continued imperfect, the pulse permanently frequent, and palpitation of the heart often distressing. This was the only variety in which relapses happened.

3. Tumultuary fever, subsiding after the loss of blood, and followed by little complaint except weakness. Such cases were seen early, some before re-action had commenced, and in these this was accelerated by the application of external heat. The blood taken was much arterialized, but never buffy.

4. Tumultuary fever, followed by tenderness of the abdomen, cough, diarrhœa, debility, slight subsultus, and mild delirium. Bleeding was frequently resorted to, but without known benefit, nor did the blood exhibit a fibrinous crust. Convalescence was often protracted by the pectoral symptoms, and in one young man hæmoptysis continued for several months.

5. The forming symptoms acute, and treated by blood-letting; pain of belly or præcordia present, with torpid bowels; and when the first stage was survived, mild delirium, debility, and yellowness of the skin, continuing without any other marked symptom in some for four, five, and even ten weeks. An exception to this course was observed in one man, who appeared to do well for a few days after the acute stage, and then became restless, delirious, and comatose, and died on the twenty-fifth day. In M'Dougall, it proved fatal in its first stage. The blood taken from these patients coagulated quickly into a bright tremulous mass.

6. Cases of a suppressed and unmanageable kind, the acute stage assuming no definite shape, the sensibility to cold continuing great, or the external heat moderate, and exhaustion appearing early. Robison's and Scott's were of this description; and another, which also was fatal, occurred in May in a girl, who had laboured under menorrhagia for several months. A peculiarity in all, was, that they did not admit of depletory, and were injured by stimulating treatment.

In May, the weather became dry but cold, and the number of fevers less and more diffused; and during the succeeding eighteen months, the disease continued to decline and get milder, the deaths in the winter of 1820-1 being as one in 5.8 of the patients treated, and in the following months, up to November 1822, only as one in 20. Forty cases are recorded in this latter interval; of these, one belonged to the first class just enumerated, another to the sixth, two to the third, four to the fifth, six to the second, nineteen to the fourth, two are not accounted for, and five were concentrated cases of the endemic synochus formerly described. Two of these latter

were of the second variety. In the one, forty ounces of blood were taken at twice, and in the other sixty ounces at three times. In the former, on both occasions, and in the latter, in the first and third bleedings, the blood had the usual marks of arterialization only, while that taken from the last patient at the second bleeding, had a thick covering of fibrin, but possessed little tenacity. Both patients recovered.

In December 1822, a sharp frost set in, which continued till February 1823, when a thaw and severe snow storm took place; and down to April, snow and north-west winds were alternated with sleet and rain. One case only of fever occurred in these six months, before January 15th, when a delicate girl, whose family had recently removed to a cold and damp house, three and a half miles below Neilston,* was seen in the disease. She complained a little of the belly, the tongue was foul, and the pulse accelerated upon slight motion; but when her body was at rest, it fell to the healthy standard; the countenance was emaciated, colourless, and dejected; and her spirits oppressed out of all proportion with her avowed complaints. On the 22d the symptoms were more alarming, emaciation proceeding rapidly, the belly tender, and the bowels irritable and swollen; a short dry cough had appeared, and the pulse risen to 120; the skin was covered with an oily moisture, the heat reduced, and the countenance of a leaden hue. In the succeeding week, she lay on her back moaning, and unable to turn; delirium, and intimations of gangrene, became perceptible, and she died January 29th, fourteen days from the first visit. On February 5th, the servant of the family, a robust woman, was found in the tumultuary stage of common fever. She was bled on the 1st, and again on the following day, after which she required common treatment only, and on the 14th day (February 19th) resumed work. On February 9th a sister of the first girl began to complain, and her situation appearing astonishingly similar, a deep interest was instantly taken in her case.† No complaint was made of the belly till the 10th, but the suppressed character of the fever, and peculiar expression of her countenance, were remarkable from the first. After the accession of pain, fomentations, leeches, stimulating oils, and blisters to the belly, were employed in succession; minute doses of blue pill and ipecacuan, united with chalk and opium, given internally, and arrow-root gruel prescribed as common drink. The treat-

* Individuals who remove to Neilston, especially to the high district, often undergo attacks of fever or bronchitis, from the coldness of its climate.

† My friend Mr. James Brown, of this city, was joined with me in the treatment of this case, but at an advanced period of its course.

ment did not at any time, even check the progress of diseased action, which advancing steadily through the stages described in her sister's case, terminated in a similar issue, February 27th (nineteenth day). Simultaneously with these, five cases of enteric fever, of the usual form,* took place in adjoining houses, which, with two cases of cephalic synochus and thirteen catarrhal fevers,† that occurred in other districts, recovered, making the mortality for the winter as one in 11.5.

The general character of the succeeding twelve months from May 1823, was cold and wet; May, June, and much of July and August, were wet and stormy; in June, there were frequent frosts, and even in the dry weeks of August and September, it felt cold in the shade, and the mornings were frosty. Except October and November, the following months were moist, or wet and boisterous; and from the end of March 1824, a cold drought continued till June, when some severe showers brought in more genial weather. In the first half of this period 20, and in the last 59 cases of fever occurred in 53 families, giving an average of one and a half to each. No death happened in the first part of the term; in the latter part there were six, or one in every 9.8 cases. This fever was met with in both districts, and among every description of population; but principally near Barrhead, and among a community of calico-printers. It assumed all the varieties of form which have been noticed in the same district, and in different individuals of the same family; but asthenic symptoms came on earlier and more uniformly than common, and sometimes suppuration of glands in the neck occurred during convalescence. One case was remarkable, in having, with diarrhœa and tenderness of the abdomen, a remission every second or third day, and a deep typhoid type from about the seventh to the forty-second day, when recovery began to take place. It occurred in February, in a family of cotton-spinners, consisting of eight persons, occupying a dark ill-ventilated room, on a ground floor. Only one other individual of the family afterwards took the disease, and in him it assumed the more ordinary form of enteric fever.

No fever was seen during the summer of 1824, from the end of April till October 5th; when 13 cases occurred, within a few days of each other, at a bleachfield in the high district; and of the 59 cases included in this and the subsequent six months, 29 took place at this bleachfield, 7 within a few hun-

* Class 4th, p. 376. The above fevers differed, however, from those of the spring of 1821, in the subsultus and debility appearing earlier, and on bleeding being inadmissible in their treatment.

† See first six months, p. 373.

dred yards of it, 12 in the neighbourhood, and 11 only in the low district, one of which was a person from the bleachfield. Most of these commenced* with acute headach, flushed countenance, intolerance of light, oppressive sickness, moaning and restlessness, the pulse quick but very compressible. In this state, blood was taken; and although the quantity did not exceed eight ounces, it seldom failed, even in robust persons, to induce faintishness. In the latter stage, moist foul tongue, diarrhœa, and slight delirium, became the prominent symptoms. In three instances, coma, sinking, brown tongue, and suffused countenance, were present from the first. In one, a deceitful appearance of remission returned every second or third day, from the 14th to the 28th; and epistaxis happened in another, about the 14th, without producing a crisis. The whole 59 cases recovered; some indeed with difficulty, and one lad never got rid of the effects of his fever, but died phthisical in twelve months. This summer had been unusually fine, and the appearance of fever in October was synchronous with heavy rains and northerly winds, and with the occurrence of a species of asthenic catarrh among the horses in the upper district. The winter was moist and warm, the thermometer even in January being often above 40°; and coexistent with fever, enteritis, and dysenteric and erysipelatous disease were more prevalent than common.

From May 1825 till November, fever was rather prevalent for this season. The summer, except in May, was very hot and dry, till August. Five of the cases, however, occurred in May, in a destitute Irish family, on their arrival at a cotton-mill, † two in neighbours of these; two in relations of the fever patient stated above to have removed from the bleachfield to the low district; two, one of which proved fatal from gangrene of the bowels, ‡ happened in men who had been subjected to great fatigue, and exposure to the sun; and fourteen, which were mild, appeared to arise from the individuals having been submitted to the evening dews: while the remainder took place from August to November, when the heat was less, and

* When a number of fevers were gathered into one large apartment, a similarity in their type was obvious; while in private families, this was less remarkable, and sometimes did not exist.

† Persons of robust habit are often subjected to a seasoning fever on their first introduction to the heated atmosphere of bleaching, printing, or spinning works.

‡ This case was as remarkable as those mentioned at page 377, for the absence of acute pain or pyrexia, the rapidity of the emaciation, and the intractable character of the disease.

the quantity of rain latterly great.* In these, oppression or severe pain at the præcordia was united with bilious diarrhœa, and in one case in which there was no particular tenderness of the belly, but great oppression at the epigastrium, a large quantity of dark coagulated blood was discharged at stool, about the 28th day, and the urgent symptoms were relieved. The mortality was one in fifty.

From the end of December, an intense frost prevailed till February 1826, when the weather became moist, and, except in the evenings, warm. In the first half of this term, the type of the prevailing fever was similar to that of the autumn cases just described, and in one woman was of a marked remittent character. In two children, the violent hepatic disorder with which the fever commenced, was succeeded about the fourth day by metastasis to the head, and one died. In this child, for a week before death, the coma into which she lapsed, was accompanied by conjunctival inflammation, and effusion of starch-like mucus on both eyes; the corneæ acquired a flaccid lustreless look, their margins were streaked with ash-coloured sloughs, and from the chemosis present, appeared sunk several lines under the other coats. In January and February, the thermometer at noon was sometimes 20° below the freezing point, but this low temperature was neither incompatible with the production of fever, nor favourable for recovery. The character of the fever was different, however, from what it had been in the beginning of winter; there was no tumultuary stage, the tongue was dry and brown, the mouth bitter-tasted, headach was much complained of, the countenance collapsed and glazed, and the pulse soft. After one or two doses of calomel and castor oil, the tongue became moist and red, and stimulants indispensable. The mortality in the six months was one in 21.

From May 14th, 1826, till August 1st, the weather was warm and dry. On June 27th, a correct thermometer in the neighbourhood stood at 97° in the shade, and the drought was so severe, that one of the best wells in the village of Neilston, did not regain its usual level till November, or twelve weeks after the rains had commenced. This and the following month were mild; in January and February 1827, there was severe frost; and in March and April heavy falls of snow, with piercing winds. During the fine weather, down to September, no instance of fever occurred. Those which took place then,

* At a place in the neighbourhood, the rain which fell in the first three months of this summer, measured 6.11 inches, and in the second 15.19 inches, while in November alone it amounted to 7.55 inches.

began with tenderness of the epigastrium, occasioning some interruption to breathing; the skin was warm but moist, the eyes yellow, the pulse from 80 to 90, the mouth bitter, and the tongue covered with a moist orange fur. In some, the pain of belly was severe, and after simple laxatives, deep green stools were discharged, followed by rapid recovery. In others, in the beginning of winter, the pain was accompanied by diarrhœa, and excessive restlessness, continuing till the 14th day, when a remission took place, during which, although the tongue was clean, the pain moderated and some sleep procured, there was great thirst, picking at the nose, grinding of the teeth, and delirium followed by renewed exacerbations every second day up to the 30th. One case during summer and two in winter were fatal, making a mortality for the twelve months, of one in 12. In the former, sloughing of the back, and suppuration of the leg from the knee downwards, were complicated on the 28th, 29th, and 30th days, with discharges of blood by stool. In one of the latter, this symptom began unexpectedly on the 10th day, and death took place apparently from the mere quantity of blood lost; in the other, it occurred on the 25th day, after the case had already appeared from other symptoms to be hopeless. In this case, pressure could not be borne on the belly, except during the attacks of pain, when a hand had always to be laid on for relief. Another peculiarity in this boy was, that he had voracious appetite up to the 23d day, the preparation of pulse known by the name of "pease brose," being his favourite food.

On reviewing the history of fever in Neilston, of which this is an imperfect sketch, it appears:—

1st, That fever is more frequent there during winter than summer; the total number of cases treated in the latter months, having been 136, and in the former, 214.

2d, The epidemic, in March 1821, occurring in wet, close, mild weather, and declining on the accession of drought and cold winds; being at first confined to low houses in the vicinity of streams or pools; and wet months having been in general marked by an increase of fever; a loaded and moist atmosphere appears to have been favourable to its production. Comparing the wet and dry seasons, however, from May 1821 to May 1826, the former including three winter and two summer half-years, giving a total of 130.63 cubic inches of rain; and the latter three summer and two winter half-years, giving only 99.69 cubic inches of rain, respectively, with the amount of fever, which in the wet seasons was 118, and in the dry 154 cases, its prevalence has not been simply as the quantity of moisture. In the instance alluded to above, and in the

fever at the bleachfield in the high district, in October 1824; in the fever of the autumn and beginning of the winter of 1825-6; and in that which prevailed from September 1826, to January 1827, a *moist* and *mild* constitution of the atmosphere was predominant; and in these fevers also, yellowness of the skin and eyes, bilious dejections, and other marks of hepatic disorder, and sometimes a remittent type, were present. Is it incompetent to admit the agency of vegetable exhalations in their origin?

3d, From the preponderance of winter over summer cases exhibited on the whole term; the history of the fever which appeared January 15th, 1823, and continued till the setting in, fifteen months afterwards, of warm dry weather, when it ceased for five months; together with the history of those cases which happened in the earlier part of the summer of 1825, and again in January and February 1826, it appears that cold, especially when united with moisture, has given rise also to a considerable proportion of these fevers.

4th, This view of the influence of meteorological causes, and in particular of moisture variously modified, in giving rise to these fevers, is farther sanctioned by their having disappeared in the dry summers of 1824 and 1826, and especially in the latter, when a diminished supply of the necessaries of life, and the presence of many depressing moral causes, made the occurrence of fever a probable event.

5th, In whatever way produced, they were afterwards communicable by contagion, and capable of assuming every variety of form, in connexion with the same exciting cause; but their contagious properties were in general very limited; the number of persons to families in the parish, being above 5 to 1, and of fever patients to families, as 350 to 237, or less than $1\frac{1}{2}$ to 1. Their tendency to spread was greater in winter than in summer, 81 of those instances in which more than one case existed at once in a family, taking place in winter, and 34 only in summer, and of these latter the majority were in the months of May and October.

6th, When fever was epidemic among the children of a family, the parents might be considered nearly exempt from its influence; two instances only of such seizure having been observed. Young persons were more susceptible than others; 145 of the patients being below 15 years, and 117 between 15 and 30 years of age, or, the fever patients below thirty years, to those above that age were as 3 to 1, while the relative proportions in the population are only as 2 to 1. Females were more frequently its subjects than males, as out of 304 cases in which the sex is known, 187, or nearly two-thirds, were females.

7th, One-fifth of the cases were slight, and without any apparent local affection, the number in which this existed being only 286. Of the latter, 98, or more than one-third had headach, or disturbance of the sensorium as prominent symptoms; 89, or less than one-third, irritability of the bowels; 51, or about $\frac{1}{3}$ th, cough, pleuritic pains, and hæmoptysis; and in 13, or $\frac{1}{2}$ d part, the liver suffered more than other organs; each class, however, presenting, to a certain extent, at some period of its course, the peculiar symptoms of the others: 35 cases are not accounted for.

8th, The mortality in the 286 severe cases was 1 in 13.6; and in the whole 350 cases, 1 in 16.6.* The greater part of those severer fevers occurred in winter, the cases in that season producing 17 deaths, or 1 in 12.6; and those in summer 4 deaths, or only one in 34. The tendency to death was less in children than in adults; the mortality below 15 years being 1 in 24; and between 15 and 30 years 1 in 11.7; and one instance only of death taking place below 10 years of age. In females also the mortality was smaller than in males; amounting in the former to 10 deaths in 230 patients, or 1 in 23; and in the latter to 11 deaths in 120 patients, or 1 in 10.9. The period of death was later than it is said to be in what is termed typhus, as in 12 out of 16 of the 21 deaths, it was after the 14th day; and the chances of recovery were supposed to diminish rather than increase, as the fever was lengthened beyond this term.

9th, Of the various classes of population, cotton-spinners were least liable to fever, and bleachers most; the gross number of the former being about 1,200, giving 32 cases of fever only in the seven years, without an instance of death; while the amount of bleachers is less than 500, and gave 66 fevers, and 5 deaths; or, the amount of fever among cotton-spinners, on a period of seven years, was one in every 262.5 persons, and no death; and in bleachers one case of fever to every 53 persons, with one death in every 13.2 cases. The labour of cotton-spinners is limited to 12 hours per day,† and the temperature of the mills is never above 90°; while bleachers require, often for a series of months, to remain at work in a temperature ranging from 90° to 130°, for at least 15 hours out of every 24; and in addition to the influence of these causes, the custom which prevails at bleachfields of lodging a

* Of these, 8 were visited in consultation, or when the patients were moribund.

† The working hours for cotton-spinners was reduced lately to 11½ hours per diem. Weavers in factories work 13½ hours per diem. Calico-printers are employed by the piece, and are either idle or oppressed with work.

number of servants together, gives facilities to the communication of contagious diseases, which do not exist in any other instance.*

Medical Treatment. Bloodletting was had recourse to only in the tumultuary stage, and appeared safe in proportion to the violence of that stage, and more or less useful as it subdued the action of the heart. Its usual effect was to moderate excitement, and diminish pain, leaving a manageable form of fever; especially if faintishness arose from its use. When it did not produce fainting or lower the pulse, the fever which followed was generally of an intractable kind. In three instances, fever received a total check from a well-timed bleeding; and in another, in which sixty ounces of blood were taken at three bleedings, was suspended for forty-eight hours. The subsequent debility in every case in which bleeding was employed, however, was greater than could arise merely from the violence of symptoms; and in three instances, it induced a state of dangerous irritation. Two of these were cases of smart fever, in men above forty years of age, of relaxed irritable habit. In one, great prostration, and anxiety at the præcordia; and in the other, violent spasms of the diaphragm, dyspnœa, palpitation, and suppression of the pulse at the wrist came on after the second bleeding. Both patients recovered; the violence of the symptoms in the latter yielding to full doses of laudanum. The third individual was a lad, who had for some months been exposed daily to hard labour in a temperature seldom below 120°. Persons under such circumstances stand active treatment ill. The symptoms were violent action of the heart, headach, and sweating. A full bleeding (18 oz.) was used, and for twenty-four hours there was a remission of the disease. On the morning of the second day, he became restless, and by midnight was lying on his back, tossing his extremities, the countenance sunk, and the delirium outrageous. Anodynes did not relieve, and stimuli aggravated the delirium. He died on the sixth day from the recommencement of violent symptoms.

Purgatives, when used daily, and so as to produce frequent evacuations, were injurious. The loss of strength, and exposure to cold incident to getting out of bed, or removing from the

* The situation of this class is full of hardship; and notwithstanding the substitution of chlorine for the much feared fluid then in use, the picture drawn by the learned and benevolent Ramazzini, of their unhealthy aspect in his time, is still a faithful one—"Fullones igitur, ac pannifices inter graves hocce odores urinæ fœtidissimæ, ac olei in calido conclavi degentes, ac interdum semi-nudi, omnes fere cachectici sunt, decolores, anhelosi, tussiculosi, et nauseabundi." De Morb. Artific. p. 303.

horizontal position thus occasioned, was highly prejudicial in some cephalic cases, and in others in which pain of belly was complained of, and purgatives given with the view of carrying off its presumed cause, tenesmus, aggravation of pain, and sometimes hæmorrhage, took place. If given in the tumultuary stage, unless bleeding had been premised, they often also occasioned a degree of catharsis, quite disproportioned to their usual effects in similar doses, and which afterwards frequently became the most inveterate symptom. Children bore repeated purging better than adults.

Adults were injured also by an allowance of stimulants, which in children below twelve years of age, produced the happiest effects.

Anodynes were useful in the advanced stage, but popular prejudice seldom permitted them to receive a fair trial.

Blisters were beneficial, generally under the same pathological circumstances as internal stimuli, and when an analeptic was requisite, none was so useful as the cantharides plaster applied to the head. For removal of pain when the patient was much reduced, the turpentine or hartshorn liniment, heated to prevent chilling, and spread on flakes of cotton wool, was preferred.

Tepid sponging during the state of excitement was of great use; and in the advanced stages, when the skin had become husky, and its power of retaining heat little, the flannel shirt and night-cap, or a flannel roller. From the coldness of Neilston, and the imperfect way in which the houses are finished, flannel coverings are indeed indispensable there, in the treatment of most diseases.

The farming population entertain a strong aversion at being put to bed, and go often to the 10th or 12th day of fever, without submitting regularly to this restraint—a circumstance which contributes greatly to produce that fatality from acute attacks of disease, which occurs with this description of individuals.* In the convalescent stage of fever the erect position was always hurtful, when it permanently increased the action of the heart; and with intelligent individuals among the manufacturing classes, it was usual to request them to lie down when the pulse rose above 80; an injunction which they obeyed more readily when told that the *increased velocity* of the heart's action was the best proof of its *diminished power*.

* Medical practice among farmers here has as few charms as it appears to have had in Italy, and for pretty similar reasons. "Nostratibus agricolis cautiones medicas proponere, ridiculum penè videtur, quoniam de hac re, nunquam, vel raro medicos consulunt, ac si quis aliquid proponat, non observantur." Ramazzini de Morb. Artif. p. 365.

Bowel Complaints. The most severe instances of dyspepsia and colic were in agricultural labourers, and bleachers; the food of the former class being bulky, little nutritious, taken at long intervals, and their clothing scanty; while many of the others, in order to save money, live exclusively on potatoes, often, for a considerable time. Little injury is sustained from this practice under thirty years of age, but afterwards dyspepsia is a frequent result. For a day or two after wages are received at public works, colic prevails sometimes like an epidemic, among the less orderly servants, from a different cause; and colica cibaria, cholera, and violent pains among the ribs, in the breast, or between the scapulæ, may, at these times, be met with, originating in the same circumstances, and, perhaps, in the same apartment.

The summer cases of diarrhœa, dysentery, and cholera, exceed those in winter about 90 per cent.; but some of the most severe occurred in winter, and in 20, cold was the obvious exciting cause. The presence of snow, or warm days, succeeded by cold evenings, sometimes produced them. A cold drink was, in one instance, followed by violent cholera; and in another, by protracted diarrhœa. A girl, in winter, fell asleep undressed on the floor, and after some hours awoke with cholera; and the occurrence of diarrhœa in two cases of burn, may be ascribed, perhaps, to the same principle. In 99 of the cases above infancy, 70 were females. The loose dress which women engaged in laborious employments wear, by affording imperfect protection from cold, appeared to render them more subject than males to every description of bowel disease.

Pulmonary Complaints. The period of life above 30 was most exposed to these diseases; the proportion of patients below that age to the whole, corresponding pretty nearly with that of the respective descriptions of the general population compared in the same way, while in the latter, the number above 30 amounted only to 28 per cent. of the whole, and in the former to 44 per cent. Of 170 cases of bronchitis and pneumonia, 45 were below 15 years, 61 between 15 and 30, and 64 above 30; and of 86 deaths from consumption, which occurred in my own practice, and that of the other surgeons, 5 took place before the age of 15, 31 between 15 and 30, and 50 beyond the age of 30, 29 of which were above 40. The deaths from the primary effects of pulmonary inflammation were as one in 21.2, but it is probable that all the survivors acquired a predisposition to future attacks, and that many of them became afterwards the victims of consumption or dropsy; a supposition which explains the above results, independently

of the mere influence of cold. Dr. Alison, in illustrating the effects of this agent in producing scrofulous disease, remarks,* “that those who suffer most from cold, are by no means those who are most frequently exposed to it, but those whose previous condition is such as to favour its operation on the body.” It may confirm this view, that the occupations of the greater part of the above patients exposed them little to the influence of the weather. Of 203 individuals, 68 were weavers, shoemakers, or engaged in domestic duties, 46 were cotton-spinners, 35 bleachers, 3 calico-printers, and 51 only employed without doors. The temperature of cotton-mills being moderate and uniform, might be supposed even favourable to life, but this advantage is more than lost, by their atmosphere being loaded, in proportion to the coarseness of the yarns which are spun, with the dust of the wool.†

Burns. Most of these were from fire-damp. They were treated by the exhibition of an anodyne, and the application of cloths dipped in lime-liniment heated to about 90°, having as much turpentine added as did not aggravate pain. These were never removed, being kept moist by applying the liniment to their external surface with a feather. This treatment was persevered in till suppuration was established, diminishing the turpentine as this took place, and substituting an emollient poultice for the liniment when that process was complete. When the shrivelled cuticle was detached, the poultice was discontinued, and the parts covered with cloths smeared with wax ointment, lessening the proportion of wax every other day, till simple lard only was used. The common term of professional attendance was fifteen days. If the liniment was applied cold, for the first few hours, it always did harm, and in certain individuals it could not be used with advantage at any time, unless when heated; but in robust subjects evaporation from the cloths, and a diminished temperature, seemed essential during the excitement subsequent on the first shock of the accident. In such persons, the use of cotton, as recommended by Dr. Anderson, would probably in this

* Medico-Chirurgical Transactions of Edinburgh, vol. i. p. 375.

† This evil is obviated in some mills, by the cotton being torn up in covered frames, and the dust conveyed from thence into concealed chambers. In one mill, where moderately fine cotton was spun, the quantity of dust thus collected in what is termed the picking-room alone, was 828 lbs. in one year; from which the situation of workers, where the coarser yarns are spun without any contrivance of this kind, may be conceived. At bleachfields, also, the goods at first are full of a subtle carbonaceous powder, got in the process of singeing. Singers, and those who open goods in this state, are annoyed with hawking of ink-coloured sputa, resembling the secretion of the bronchial glands.

stage have proved hurtful by accumulating heat.* In the suppurative stage, when the sensibility to cold is always considerable, it was usual to apply fleeces of cotton wool external to the ointment cloths; but I am now satisfied that they would have been more usefully employed immediately on the wound; and that in persons of delicate constitution, or in advanced life, the cotton in every stage of these injuries, would often have been preferable to the liniment.

Pratt's Court, Argyll-street, September 11th, 1828.

VI. *Cases in which Lumbrici were evacuated by Ulceration, through the Parietes of the Abdomen.* Communicated by WILLIAM YOUNG, M. D.

CASE I. J. L., aged seven years, had frequently passed lumbrici. About the beginning of March 1817, he was attacked with severe pain in the right side of the abdomen, between the crest of the ilium and last false rib, but from which he had occasional slight intermissions, and for several weeks seemed easiest when sitting with his trunk bent forward, and his elbows resting upon his knees.

A tumour about the size of a goose's egg gradually formed in the right lumbar region, which remained a considerable time without any discoloration of the integuments; but disappeared suddenly after a copious discharge of grumous fœtid matter from the bowels, occasioned, it was supposed, by its bursting internally. This occurred in May, and the patient's general health improved during the summer: in August it again became worse, and a swelling appeared in right side, extending from the sacro-iliac junction to the twelfth rib. The medical gentleman in attendance declined to open the tumour, but ordered onion poultices to accelerate its suppuration. The abscess burst spontaneously while the patient was in bed, but the fœtid smell that arose from it, gave the family intimation of the occurrence. The child was literally drenched in the contents of the abscess, in the orifice of which was found a white substance, which proved to be a lumbricus alive and active, measuring eighteen inches in length. The poultices were still applied to the abscess, and in the course of a few weeks a second and a third worm of the same kind made their way through the opening. No fœces were ever observed to pass through this aperture; although purulent matter was

* Mr. Wallace, my successor at Neilston, states, that in a robust collier, whom he dressed with cotton wool, the pain by the third day became so acute, that he was forced to remove the cotton and bleed his patient.

abundantly discharged from it for several months, the wound ultimately cicatrized.

This boy enjoyed good health from May 1818 till the spring of 1819, when, in common with the rest of his family, he had an attack of fever: during his convalescence, a swelling again appeared on right side of abdomen, about three inches nearer the linea alba than the former one. This swelling suppurated, and towards the beginning of June, a considerable time after it had burst, a worm of ten inches in length was found on the poultice. During the months of June and July a great improvement took place in his general health, the discharge diminished, and he ran about and amused himself. On the third Tuesday of August he came home from play, complaining of intense itching and uneasiness in the abscess, and exclaiming that he could bear it no longer. From this state of suffering he was relieved by removal of the dressings, when a large worm was found hanging from the abscess in his side; its extraction was effected with some difficulty, and was followed by a stream of blood. This was the last of five worms which passed through the parietes of this boy's abdomen.

In October 1819, he appeared to be in good health, and the abscess through which the last worm had passed was closed, and covered with a scab. In August 1820, he was in perfect health and attending school.

In concluding this case, it may be observed, that about twelve months before the formation of the last abscess, a pin encrusted with verdigris had come through the same part of the abdomen by suppuration; it may, therefore, be a question whether the worms insinuated themselves into the track of the pin, or formed a new one by erosion.

CASE II. R. F., eleven years of age, of a sallow complexion, had enjoyed tolerably good health till 21st October 1819. His complaint commenced with feelings of contraction in the abdomen, chilliness, and a constant desire to approach the fire; the chilliness was succeeded by flushing of the face, slight headach, and other symptoms which usually characterize an attack of typhus mitior. As this complaint was very prevalent in the place at that time, the medical attendant was induced to refer his indisposition to that cause. With this view of the case, an ipecacuanha emetic was prescribed on the 23d, which operated well, but did not seem to alleviate the complaint in the slightest degree. On the 24th, a dose of calomel and jalap was administered, which also operated well; the bowels, however, had not been in a costive state. The febrile symptoms con-

tinued unabated; at one time he complained of pain in the right side, about the situation of the fifth rib, and at another time of slight griping pains of the bowels, which were, however, only of short duration. The typhoid symptoms and low delirium were moderate; and the bowels continuing open, he was ordered a small dose of rhubarb. About the beginning of November, his lips and teeth began to be covered with a chocolate-coloured sordes, but the tongue was clean from the commencement of the disease. On the second day of his indisposition, he took a little food, but during its progress he tasted almost nothing; his thirst was allayed by drinking milk and water. On the 2d of November he appeared likely to do extremely well, there being no unfavourable symptoms present. About three o'clock of the morning of the 3d, he felt an inclination to go to stool, where he voided some clotted blood, and a worm. A little before four A.M. he had a profuse discharge of blood from the anus, so profuse, indeed, that his father, who is a most intelligent man, said he could compare it to nothing but the gush of blood from a sheep's neck while throbbing under the butcher's knife; syncope was the immediate consequence of this hæmorrhage. Cloths dipped in cold water were applied to the anus, which appeared to check the bleeding externally, and the patient recovered from the syncope. About seven o'clock the hæmorrhage returned; on lifting the bedclothes every thing was found drenched in blood, a little behind him was a large lumbricus, and another was making its way through the anus. He calmly expired soon after; but on the supposition that he might only be in a state of syncope, the body was wrapped in warm flannel, and kept in that state for a few hours. At eleven A.M., a little blood was found to have oozed from the anus, and two large lumbrici were in the act of passing it; but there was not the slightest hope of resuscitation.

Dissection. On laying open the abdomen, the viscera, in general, appeared uncommonly pale and flaccid, and contained no flatus throughout their whole extent. The ilium, a few inches above the caput coli, was of a dark-brown colour; the blood-vessels were distended, and the mesenteric glands in the vicinity enormously enlarged. The ilium was opened about three feet above its termination in the colon, and every portion of it carefully examined; several small lumbrici were found high up in this portion of the intestinal canal, and three measuring from six to ten inches in length. In tracing the intestine downwards, a considerable quantity of greenish flocculent semi-organized matter was found, containing a great

number of small lumbrici; several large ones were also found near this matter, with several ulcerated patches of the gut. The mesenteric glands were enlarged, and the blood-vessels much more wasted where the worms and ulcerations were situated, than in the portions of the intestinal canal, which were not similarly affected. The discoloration of the termination of the ilium was discovered to arise, not from any change in its structure, but from the flocculent substance above mentioned. At the termination of the ilium and valve of colon, a vast number of worms, of different sizes, were found: these parts were deeply ulcerated, and the valve was considerably thickened. In the caput coli were found several clots of blood.

In the preparation which has been made of this part of the intestine, on the left side immediately over the valve of the colon, there is an eroded vessel from which the hæmorrhage seems to have taken place, and into which a bristle has been inserted. In the ascending colon many ascarides were observed, but there were not the slightest appearance of either blood or fæces. The transverse and descending colon had a blanched appearance, and contained here and there a few ascarides and small lumbrici, but neither blood nor fæculent matter. In the rectum four large worms were lodged, its internal coat seemed suffused with blood, but no ulceration was observable. From the most careful examination of the lower portion of the alimentary canal, there cannot be a doubt respecting the place from which the hæmorrhage proceeded, although there was no blood found in the colon, with the exception of that in the caput coli. The spleen was nearly double the usual size. The stomach contained a considerable quantity of water, and two pieces of curd, about the size of a hen's egg. The upper part of the intestinal canal was quite empty.

CASE III. M. F., aged 15, sister of R. F., whose case has just been given, is a tall thin girl, with a pale sallow complexion. In the beginning of June 1818, she was attacked with severe bowel complaint, the pain was often excruciating, and though not absolutely fixed to a particular spot, was generally in the lower part of the right side of abdomen. During the paroxysms of the disease, the belly was retracted, and the knees folded up upon the breast; in this state she would frequently scream out in the greatest agony. As the pulse was moderate, the complaint was at first supposed to be colic, induced by cold applied to the extremities, or something in the ingesta that had deranged the functions of the alimentary canal. Warm fomentations were applied to the abdomen,

and a dose of castor oil, with thirty drops of laudanum, was administered. As little advantage was obtained from this practice, salts, senna, and several doses of calomel and jalap, were prescribed. Although these medicines brought away four large lumbrici, the patient's sufferings continued with very little abatement: even from the commencement of the complaint, she had intervals of comparative ease, from a state of the most acute distress. This circumstance, along with the evacuation of the lumbrici, induced me to refer the whole complaint to the irritation of worms on the coats of the intestines. About the 11th of June, the paroxysms became both more severe and frequent; as the pulse was small, and considerably accelerated, ten ounces of blood were taken from the arm. This detraction of blood seemed to have little effect on the local complaint, and the constitutional symptoms of enteritis not being strongly marked, purgatives, topical blood-letting, frictions with camphorated mercurial ointment, and blisters, were the means employed for her relief. The practice pursued in this case seemed to be indicated, not only from the severity of the pain, but also from a large deep-seated tumour in the right side of abdomen, situated about mid-way between the umbilicus and crest of ilium. Some doubts were entertained respecting the cause of this tumour, as it might either proceed from the operation of some unknown cause between the peritonæum and abdominal muscles, or from the irritation of worms penetrating the coats of the intestines in contact with the internal surface of the abdominal muscles.

By whatever cause it might have been occasioned, it was deemed advisable by every possible means to prevent its going on to suppuration, which could only be retarded by the means employed. At length fluctuation became distinctly perceptible, the abscess burst, and discharged a large quantity of purulent matter. On the supposition that the complaint had originated from the irritation of worms, an expectation was entertained that some of these vermin might possibly make their escape with the contents of the abscess. Nothing unusual, however, was observed in the matter discharged. By July 30th, the discharge had become so inconsiderable, that the poultices were laid aside, and a piece of adhesive plaster was applied over the sore. She now began to walk about and take a little exercise in the open air. Her health was so much improved in the course of the following winter and the spring of 1819, that she was not considered as a patient. In walking she stooped greatly, and appeared unable to stand upright; although the wound gave her very little inconvenience, it had never healed up. In June she

went to the country, where there is every reason to believe she exerted herself much more than was proper for her, in the debilitated state in which she was at that time. After her return she had severe pain in the bowels and in the site of the abscess, and the discharge of pus was occasionally mixed with the contents of the intestines.

She went to the sea-coast for the benefit of the air, and, contrary to the instructions given her, went several times into the water. She returned home in a very lamentable condition, often harassed with excruciating pain, and the discharge of the contents of the intestinal canal through the abscess evidently increasing. About the end of September, a white shining substance was observed obstructing the orifice of the abscess; the patient extracted it herself, and it proved to be a dead lumbricus in a semi-dissolved state. A few days after this worm was extracted, another of the same species made its escape alive. The tormina were frequently agonizing, and attended with flatulæ, and a copious discharge of liquid fæces through the abscess, so that for several weeks she was unable to keep herself dry an hour at a time. January 3d, 1820, she was able to walk through the house, and was much better. This poor girl's health continued variable till the 4th of March, when a considerable hæmorrhage took place from the abscess, which threw her into great alarm, as she conceived her case to be, in many respects, analogous to that of her deceased brother, whose history and dissection have been given in the preceding pages. On the evening of the 4th, she had a stool, which contained a considerable quantity of fluid blood, and on the day following she passed ten or twelve ounces more. Her countenance was pale, her eyes dull, and her pulse scarcely perceptible at the wrist. Although she recruited a little from this state of debility, she remained several days in a very languid condition, without any evacuation from the bowels; her extreme weakness appeared to preclude the propriety of even an enema being administered.

During the course of her tedious illness, her mental faculties, which were of a very superior order, were often employed in the moments of relaxation from pain, in flights of poetical composition and devotional exercise, which rendered her peculiarly interesting to those who knew her intimately. She languished till the morning of the 12th March, when she expired without a struggle.

Dissection. In different parts of abdomen several glands were found in a state of suppuration, but the matter they contained was of a concrete nature. The omentum was almost entirely absorbed, and what remained of it had the appear-

ance of dirty blue woollen thread. The jejunum, about two feet and a half from the duodenum, was greatly narrowed, and adhered to the abdominal muscles; at the adhesion thus formed, there was an aperture in the intestine, communicating freely with the external opening of the abscess. The next portion of the intestinal canal involved in the disease was the termination of the ilium, and commencement of colon, both of which were connected with the diseased portion of the jejunum, and communicated with the aperture of the parietes of the abdomen. The last portion of the intestine implicated in the diseased adhesion was the ascending colon, where it bends round in its course to the left side, and which also communicated with the common aperture. The portion of the colon, situated between the two points adhering to the parietes of the abdomen, was much ulcerated, and from it, most probably, the hæmorrhage proceeded.

The mother of R. and M. F. is still alive, and suffers much from the complaint which carried off her children; in fact, this family, like Herod, is really eaten up by worms. Some French naturalists entertain the notion, that a moderate use of wine is the best preservative against intestinal worms; it certainly appears, that the inhabitants of wine countries are less subject to them than those nations who do not possess this salutary beverage.

Such is the account of these very interesting cases, communicated to me by the medical gentleman who attended them. So far as I know, no account of any similar ones has been published in this country, except one case, in the first volume of the Edinburgh Medical Essays, and two in the seventh volume of the London Medical Journal. The first is related by Mr. Douglas, an army surgeon, of a woman who was seized with gripes, vomiting, and costiveness, which continued four days, under the most active treatment; she had an indolent tumour in the right groin, which suppurred, and after being opened, gave exit, at different times, to four large lumbrici. The orifice gradually healed up, but at the end of a month a small opening formed in the cicatrix, from which the thinner parts of the excrements were discharged.

The second, by Mr. Coleman of Sandwich, of a woman, who had a large abscess in the right groin, which burst, and sloughed to a considerable extent, and who, at various times, passed thirteen lumbrici by the abscess, and two by the anus; her health gradually improved, but a fistulous sore remained, from which she discharged purulent matter, tinged with fæces, and occasionally a lumbricus.

The third, by Dr. Hamilton of Ipswich, of a child, eighteen

months old, who had a swelling of the navel, supposed to have arisen from some violence in taking off the dressings, before the cord had thoroughly separated. Although the part appeared to have healed, it always appeared tender, and, to prevent its protruding, a bandage was pretty tightly applied over it; on removing it one day, a lumbricus was found crawling on the abdomen. On examining the umbilicus two small holes were found in it, from which came away ten more lumbrici, each from six to nine inches in length.

In cases of this kind it is difficult satisfactorily to account for the occurrence of external abscesses. For even granting that the long continued irritation would produce ulceration of the bowels, we should either expect them to find their way into the cavity of the peritonæum, sooner than through the abdominal parietes; or, at least, from the known frequency of intestinal worms, to meet more frequently with the complaint. As it is, however, the fact of adhesion taking place between the bowel and the abdominal parietes, so that the cavity of the peritonæum is protected, and the foreign body brought to the surface, affords, perhaps, the most striking illustration recorded, of Mr. Hunter's doctrine of progressive absorption; a process to which he has given the quaint but expressive appellation of the *Natural Surgeon*.

VII. *Report of Cases treated in the Surgical Wards of the Glasgow Royal Infirmary, from 1st November 1827, till 1st May 1828.* By JOHN COUPER, M.D. Senior Surgeon to the Infirmary, &c.

Abscess,	12	Brought forward,	97
Aneurism of aorta,	1	Neuralgia,	1
Burn and scald,	9	Onychia maligna,	2
Bursa, disease of,	1	Ophthalmia traumatica,	2
Carbuncle,	1	Periostitis,	2
Carcinoma mammæ,	4	Phlebitis,	1
———— labii pudendi	1	Polypus nasi,	1
———— penis,	1	Prolapsus ani,	1
———— maxillæ inferioris,	1	Sibbens,	1
———— labii,	1	Sprain,	3
Caries,	4	Spine, disease of,	2
Contusion,	6	Strumous softening of bones,	1
Erysipelas,	10	Stricture of rectum,	1
Fistula in ano,	3	———— urethra,	1
Fracture,	31	Synovitis,	8
Gangrene,	1	Tumour,	4
Hydrocele,	7	Ulcer,	45
Laryngitis,	2	Ulceration of cartilages,	9
Lupus,	1	Warts on penis,	1
Necrosis,	2	Wound,	14
	97		199

There were 10 deaths, viz. one from synovitis (see case); one from erysipelas and gangrene, in an old debilitated subject; one from gangrene of nates; one from sloughing, after amputation of penis; one from erysipelas and diarrhœa, consequent on wound of arm; two from extensive burns in subjects of 73 and 83 years of age; one from phlebitis, following phlebotomy practised before admission; and two after extirpation of mamma, the one from pleuritis, and the other from sloughing.

Eight were dismissed with advice; seventeen relieved; one was remitted to the physician; one dismissed by desire; 21 remained under treatment; the rest were cured.

Burn and Scald. All the nine cases were treated by the immediate application of dry cotton wool to the injured parts, as described by Dr. Anderson, in No. II. of this Journal, and the result was such as to incline me to think very favourably of the practice. When the injury, however extensive, is of such severity as to produce only vesication, the cotton is by far the most advantageous application with which I am acquainted; and even in severer cases, when a portion of the integuments must slough, the patient may be saved from much of the debilitating discharge, which emollient and unctuous applications always produce, by the application of dry cotton, and the careful renewal of it, as soon as it becomes soiled with pus.

Hydrocele. Of the seven cases of hydrocele, three were cured in the usual manner, by injection. The remaining four were treated by the excision of a minute portion of the tunica vaginalis, after the fluid had been evacuated by puncture. Although these cases also proved successful, the inflammation which followed the operation was evidently much more severe, than that which is usually excited by injection. In one patient, fully one half of the scrotum sloughed, and many weeks elapsed, before the testes were covered with granulations, and the wound cicatrized. This mode of operating, therefore, should only be had recourse to, after injection has failed.

Erysipelas. Very few cases of erysipelas occurred in patients admitted for other diseases; and only one sore assumed a character deserving the title of hospital gangrene. In cutaneous erysipelas, the treatment consisted in the free and repeated application of leeches, smart purgatives, antimonials, and evaporating lotions, to which were added wine and tonics, when the subjects were old or weak. Phlegmonous erysipelas, or diffuse inflammation of the cellular membrane, was uniformly treated by early and free incisions through the inflamed parts. Had former experience not convinced me of the propriety of this practice, the cases which occurred

during the past winter, would alone have sufficed to demonstrate its advantages. I notice the following, because it affords an opportunity of comparing the effects of treatment with and without incisions.

Thomas Jack, æt. 43, officer of police, was admitted, December 1st, 1827. Eleven days previous to admission, he had received a severe sprain of left tarsus; on the following day he had frequent rigors, which were succeeded by inflammation of the integuments around injured joint. The inflammation was at first most severe over dorsum of foot, but soon extended with equal severity over the whole of the inferior and inner part of calf of leg. A patch of integuments extending along outside of foot, and around outer ankle, first vesicated, and six days previous to admission, sloughed, leaving at time of admission, a sore, ten inches long, and four inches broad, covered by dead cellular membrane of a yellow colour, and having its edges extensively undermined. The whole of the integuments of lower third of leg were then greatly swollen, tense, of a dull red colour, and somewhat boggy to the feeling. On back of calf were numerous vesicles. The strength was much reduced, his pulse 120, and small, and his tongue brown; he had great thirst, and occasional delirium. He had applied emollient and fermenting poultices.

An incision between three and four inches in length was immediately made, completely through inflamed integuments on inner side of calf. Sore and wound were dressed with camphorated oil, a bandage was lightly applied from toes to knee, and that part of bandage which covered leg, was kept constantly moist, with a lotion of spirits and lime water. He experienced immediate relief. During the night he slept well, and on the following morning he felt easier than he had done for many days. No sloughing took place on leg. On the 8th current, seven days after admission, the inflammation of leg had ceased. The slough on dorsum of foot had separated, leaving a tolerably healthy sore. His pulse had fallen to 72, and his appetite was good; but it was not till after a residence of nearly three months in the hospital, that the healing of the sore on foot was effected.

In this case it seems clear enough, that the incision prevented the integuments covering the calf of the leg from sloughing, and thereby producing a sore as troublesome as that which was formed in the same way on the dorsum of foot. It seems also equally plain, that, had the incisions been practised sufficiently early in the latter situation, as well as in the former, the sore, which afterwards proved so tedious, might, in all probability, have been prevented.

Compound fracture of upper maxillary, malar, and nasal bones. Michael Conor, æt. 26, labourer, admitted February 7th, 1828. Seven hours ago, while standing in a coal pit, a portion of the roof fell, and struck face, breast, shoulders, and occiput. Both nasal bones are fractured near their anterior extremities; and over seat of fracture there is a wound of integuments passing across right side of nose, and communicating both with the fracture, and with the nostrils. Face and left side of scalp are slightly emphysematous. Portions of malar and maxillary bones forming lower margin of right orbit, are driven considerably backwards, but vision is not affected. Teeth on right side of upper jaw, from first incisor, to second molar, are driven considerably inwards, and gums are detached from them. Probe passes freely along their bared roots, and along maxillary bone to edge of orbit, and depressed bones are felt rough. The same bones are also felt through a wound in right cheek, commencing about an inch to outer side of angle of mouth, and running upwards and inwards to the extent of an inch. This wound does not communicate directly with mouth, but a probe passed into it in a direction towards the orbit, comes in contact with another passed in the same direction, from a wound within the mouth.

The shattered pieces of bone were pressed as nearly as possible into their natural situation, and the wounds dressed with adhesive plasters. By the aid of free bleeding, both general and topical, rest and abstinence, suppuration was prevented; and in March 19th, betwixt five and six weeks after the accident, the patient was dismissed with the shattered bones consolidated, the wounds cicatrized, and scarcely any deformity resulting from the injury.

Most surgeons, although fully alive to the injurious effects of profuse discharge in compound fractures, seem but little aware how often its profuseness depends on the frequent renewal of dressings. The following two cases of compound fracture of the leg, illustrate this point.

John Little, æt. 16, admitted January 20th, 1828. An hour ago, received a kick from a horse on front of right leg. Both bones are obliquely fractured at upper end of lower third; and on inner side of leg at seat of fracture, there is a roundish wound of integuments, of the size of sixpence, through which the fractured bones are felt. There has been some venous hæmorrhage, and the parts around wound are considerably swollen from ecchymosis.

The limb was placed in the straight position, the wounds dressed with oiled lint, and splints and a bandage applied. During five weeks, these dressings were allowed to remain

undisturbed, the patient suffering no pain in the limb, and not the slightest derangement of the general health; at the end of that time, on removal of the bandages, the bones were found completely united, the wound in the integuments still admitted the point of the little finger, but no bone could be felt either with the finger or a probe. The integuments above, and to outer side of wound, were undermined to the extent of about three inches, and, when pressed, discharged about two teaspoonfuls of healthy pus. About the same quantity of pus was found on the bandages. Immediately after this first dressing, pus was formed in such quantity, that the leg required to be dressed every day, or every second day, and many weeks elapsed before the undermined integuments became sound.

William M^cMillan, æt. 8, admitted April 2d, 1828. An hour ago, a bale of cloth fell from a cart, struck front of left leg, and fractured it a little above inferior third. Tibia is broken obliquely, and its inner margin projects half an inch through a wound of the soft parts, which would admit a finger. Integuments are detached to the extent of an inch around wound.

The limb was placed in the straight position, the wound dressed with dry lint and adhesive plasters, over which a bandage and splints were applied. The whole was allowed to remain untouched till the 30th of April, when it was removed; the following is the report then entered in the journal: "To-day, bandage was removed for the first time, complete union of bone has taken place; integuments are perfectly sound. External wound superficial, and not larger than the base of a split pea. During the whole treatment no pain has been experienced, and not the smallest disturbance of the general health."

This patient would have been dismissed cured at the end of the fifth week, but for a slight attack of dysentery with which he was then seized, and which delayed his dismissal a week longer.

Laryngitis: Bronchotomy. The propriety of opening the windpipe, when an extraneous body is lodged in it, is now so fully established, that a well informed surgeon can no longer hesitate in such cases; but when dyspnoea arises from a diseased state of the larynx, produced by other causes than the one above mentioned, there is still room enough for diversity of opinion. The following two cases therefore seem interesting, as examples of laryngitis in adults, treated by bronchotomy. In the one the disease was chronic, in the other acute: in both the result was successful, and in one the operation was performed twice within the space of 24 days.

William Limpitlaw, æt. 50, weaver, admitted November 7th, 1827. Respiration and deglutition are performed with great difficulty, and when asked where impediment is felt, he points to larynx. Voice is much impaired. Air during inspiration, when passing upper part of larynx, produces a loud, dry, snoring noise, and occasionally a ringing sound. Has now and then, especially in the morning, a paroxysm of severe cough, with copious but difficult expectoration of tough yellowish sputum. Parts in front, and to either side of thyroid cartilage, are tender to pressure, and somewhat swollen, and swelling extends in a less degree towards cricoid cartilage and os hyoides, but surface is not discoloured. Nothing unusual is discovered in fauces, and the epiglottis examined by the finger, seems of natural size and form. Pulse 120, feeble and thready, skin cold, countenance pale and haggard, strength much reduced, sleeps little.

Complaints began six weeks ago, without obvious cause, with swelling around thyroid cartilage, followed by throbbing pain in the part. Pain subsided in a week, but swelling has continued. Seven days after complaint began, first felt some difficulty in breathing and swallowing. These symptoms have been gradually increasing, and during the last eight days, the dyspnœa has been urgent.

Leeches, and after them a blister, were immediately directed to be applied over larynx, and a grain of calomel with the same quantity of opium, was ordered every third hour. About nine o'clock in the evening he was suddenly seized with a violent paroxysm of dyspnœa, threatening immediate suffocation. Nearly an hour afterwards, when I reached the hospital, the dyspnœa had abated a little, but was still so urgent, that, with the concurrence of my colleagues, I proceeded immediately to open the windpipe. On account of the swollen state of the parts covering the larynx, the opening was made below the cricoid cartilage, and produced immediate relief from the dyspnœa. The wound was kept open by a bit of curved wire. The patient passed a comfortable night, breathing easily through the wound, and swallowing occasionally some wine and water, a little of which escaped once or twice by the wound, producing a sense of suffocation.

On the two following days, November 9th and 10th, he continued free from dyspnœa, and swallowed easily, excepting that once a little milk escaped by the wound, and caused a severe fit of coughing, an accident, which never afterwards recurred.

On November 11th, the following is the report entered in the journal. "Continues to breathe by the wound without

difficulty. Has taken a sufficient quantity of food, which he has swallowed with ease. Slept well. Pulse 72, of good strength."

From this time, he experienced no further dyspnœa, excepting on one occasion, when he had a slight paroxysm, in consequence of the accidental derangement of the wire, by which the wound was kept open. After a few weeks the wire was exchanged for a curved silver tube, about $2\frac{1}{2}$ inches long, and $\frac{1}{4}$ of an inch in diameter, and provided with two small rings, through which a piece of tape was passed, and tied round the neck, to retain the tube in its place.

On the supposition that the contraction of the cavity of the larynx depended on thickening of its lining membrane, a mercurial course was prescribed, but apparently without benefit; for, although the patient continued to breathe easily, so long as the wound was kept open, yet all attempts to make him breathe through the mouth alone, proved ineffectual. On various occasions the wound was closed with adhesive plaster, to ascertain if any improvement had taken place, but it was invariably found necessary at the end of a few minutes to open the wound, and replace the tube, on account of increasing dyspnœa. At one time I entertained hopes of being able to dilate the contracted larynx, by bougies passed upwards through it from the wound; but the extreme irritability of the parts rendered this proposal impracticable. The introduction of even a probe through the wound into the larynx, was found to excite such a paroxysm of cough, that it was absolutely necessary to desist.

This patient remained above five months in the hospital. During this time he was cured of a large hydrocele, with which he had long been afflicted. He had also several slight feverish attacks resembling ague, which he had had many years ago, while abroad with the army. With these exceptions he enjoyed good health, and on May 1st he left the hospital, suffering no inconvenience, excepting the necessity of breathing through the tube; a circumstance, which five months' custom has almost made him cease to regard as an inconvenience. By stopping up the tube with the point of his finger, he could speak in a hoarse, but sufficiently audible tone of voice. Since his dismissal, he has repeatedly returned to the hospital to show himself. His last appearance was in the month of August last, when he continued perfectly free from all complaint.

Samuel Henderson, æt. 28, tobacco-pipe maker, admitted March 6th, 1828. Thirteen days ago, after exposure to cold, while in a state of perspiration, with his neck and breast uncovered, was seized with slight symptoms of laryngitis, and

some pain during deglutition. On the third day the symptoms having increased, he was bled with considerable relief. On the sixth day he was again bled with good effect, but the symptoms continuing urgent, he was, five days ago, on the seventh day of the disease, admitted into the medical department of this house. He was there again bled, blistered, and had diaphoretics, but the symptoms, with an occasional remission, have been on the whole on the increase until this morning, when he had a severe attack of orthopnoea, which threatened instant suffocation. He was therefore transferred to the surgical wards under my care.

During the paroxysm, his face had become livid, and his pulse imperceptible at the wrist. When I examined him, his breathing was somewhat relieved, but he could not resume the horizontal posture. Inspiration was laborious and wheezing: fauces were red and swollen: and the epiglottis was felt enlarged, tense, and shaped like a glans penis during erection. He was quite decided in referring all his uneasiness to the larynx. Laryngotomy was immediately agreed upon. In making the incision through the integuments, a small artery was cut, and bled very freely. At the same instant the dyspnoea became greatly increased; the patient's face became livid, his limbs quivered, and his urine was ejected involuntarily. Without waiting to secure the artery, I immediately perforated the thyro-cricoid membrane, and the transition from the state now described to easy respiration was nearly instantaneous. The patient's body being inclined forward, no inconvenience was felt from the bleeding, which was speedily stopt by the pressure of the wire employed to dilate the aperture. From this time he continued to breathe easily, partly by the wound and partly by the mouth, and swallowed without difficulty.

On the 10th current, four days after the operation, the wire was withdrawn, when it was found that very little air passed by the wound. He slept well in the horizontal posture, and the epiglottis was felt of natural size and shape.

On the 21st current, the wound had so nearly healed, that no air escaped by it, even during coughing, and in three days more the wound was completely cicatrized.

He continued well till the morning of the 30th, when he had a rigor, followed by most urgent orthopnoea, impediment being referred to right side of larynx, which part was slightly swollen, and painful to pressure. The fauces and epiglottis appeared natural. A full dose of laudanum and antimonial wine having failed to procure relief, I again opened the larynx with immediate relief to the breathing. From this time he

had no return of dyspnœa: the pain and swelling over right side of larynx soon disappeared.

On the 10th April, the wire was exchanged for a silver tube, with which, after a few days, he wished to dispense, but was not allowed. He therefore retained it in the wound, but generally kept it plugged up, finding it most comfortable to breathe by the mouth alone. At this time the left cervical and submaxillary glands became affected with swelling, which proved tedious, and ultimately terminated in partial suppuration, but never in the slightest degree affected either deglutition or respiration. It was thought prudent to maintain the aperture in the larynx until the middle of May, when the tube was withdrawn, and, by the 27th of that month, the wound had cicatrized. On the 4th June he was dismissed, enjoying perfect health, except that a considerable firm glandular swelling occupied the left side of the neck. This state of the parts was probably kept up by his long continuance in the hospital, for, by the beginning of July, a month after his dismissal, the swelling was gone, and he continued, in all respects, perfectly well.

Both of these cases appear important; the former as an example of contraction of the larynx produced by chronic inflammation, and the latter as an instance of the same effect arising from acute œdematous laryngitis. The important fact, that the dyspnœa, in cases of laryngeal disease, is liable to sudden and dangerous exacerbations, is well illustrated by both. Such paroxysms may cease, after the irritability of the parts is exhausted, but they will certainly recur again and again, until suffocation is produced, unless an artificial opening is made into the windpipe, to allow a free access of air to the lungs. When the necessity for it ceases, the aperture can be easily healed up; and even should the contraction of the larynx prove permanent, as in the case of Limpitlaw, it must be allowed, that the inconvenience arising from breathing through a tube inserted into the windpipe during the remainder of life, is small, when compared with loss of a limb, to which few refuse to submit as a mean of prolonging life.

Synovitis. On December 26th, 1827, James Connal, sailor, æt. 56, was admitted for a moderate sized hydrocele of right side, which was treated on the following day by evacuating the fluid with a lancet, and cutting off a minute portion of the tunica vaginalis with scissors. On January 12th he was dismissed cured.

Three days afterwards he returned, a very small quantity of matter having collected under the integuments at the seat of puncture. The part was laid open and dressed, and by

the 27th January the wound had almost cicatrized. On that day he was employed, when lightly dressed, in applying leeches to another patient; and in the evening he had a rigor.

On the morning of the 28th, he complained of occasional obtuse pain in calf of left leg, and in left knee. In the evening the pain had shifted to right calf and right knee.

On the 29th the pains were felt in both legs alternately, but without constitutional disturbance. In the evening he had another rigor, after which the pain attacked the right shoulder joint.

On the 30th the pain was most severe in right shoulder, but neither there, nor in any of the parts already mentioned, was either swelling or discoloration to be discovered. His pulse was now quick, his tongue brownish, and he complained of oppression at præcordia. In the evening he had a severe rigor, hiccupped occasionally, and complained much of pain in right shoulder, left knee, and left calf, in the last of which there was now considerable tense swelling, but no discoloration.

Notwithstanding the free use of purgatives, antimonials, leeches, and evaporating lotions, from the first appearance of the symptoms, he sank under the disease, and died on the morning of the 31st.

On examination after death, the integuments of calves of legs, particularly of left leg, were found distended with brownish serum; and the cellular connexions of muscles of calf contained a similar fluid. In left knee-joint there were a few drachms of thick pus, but no vascularity or swelling of lining membrane. Integuments on inner side of right shoulder were similarly affected; there was a very small quantity of thick pus in bursa under deltoid muscle, and a very small quantity within the joint. Thoracic and abdominal viscera healthy.

The subject of the following case was admitted by my colleague Dr. Young, and was under my care only during the last day of the patient's life. The case, however, seems worthy of notice, from its similarity, in many respects, to the preceding.

James M'Cormick, æt. 43, porter, was admitted, October 13th, 1827, for retention of urine from chronic enlargement of the prostate gland. With some difficulty a good sized elastic catheter was passed into the bladder; and on the 17th curt., four days after admission, he had recovered the power of voiding his urine. On that day he complained of pains in both shoulders, for which vinum Colchici was prescribed. After two days the pains removed to left knee and left elbow: they were very severe, and accompanied with swelling in both joints. On the 24th, some external redness was perceptible,

and on the 27th, fluctuation being distinct near elbow, a puncture was made, and about an ounce of pus discharged. The affection of left knee followed the same course. On November 2d, although the patient was evidently sinking, the abscess was opened, and 8 ounces of pus evacuated. On the following night he died. The fever in this case was considerable, and during the last seven days of the disease, was accompanied with delirium, and a deep yellow colour of the whole skin. Leeches, purgatives, opiates, and cataplasms, were employed freely with very partial advantage.

After death, the left elbow-joint was found to contain a large quantity of thick pus, which communicated with the external opening by a sinus behind the external condyle. The external condyle within the joint was denuded of its cartilage, and rough. The head of the radius was similarly affected. The left knee-joint was full of pus, and the pus passed upwards to the extent of 5 inches betwixt the vastus externus muscle and the femur.

There was a false passage connected with the urethra. The prostate gland was about twice the natural size. The viscera of thorax and abdomen were natural.

Every hospital surgeon is well aware, that, besides cutaneous erysipelas, the inmates of large hospitals are also liable to certain insidious, acute inflammatory affections, supervening in patients admitted for other disorders, especially in those who have undergone any surgical operation, and in general proceeding rapidly, notwithstanding the most active treatment, to a fatal termination. In such cases the disease is usually seated in the serous linings of the thorax and abdomen; but why may not the synovial membranes also be liable to analogous attacks? Acute synovitis is, in general, distinctly traceable to partial application of cold, or to mechanical injury of the joint. In neither of the cases now reported, however, did any such local cause exist; besides, the disease did not appear in one, but simultaneously in several different and distant parts of the synovial system.

LIST OF OPERATIONS.

Amputation of thigh, . . . 1	Brought forward, . . . 14
————— fore-arm, . . . 1	Extirpation of lip, . . . 1
————— arm, . . . 1	Fistula in ano, . . . 3
————— penis, . . . 1	Hydrocele, by injection, . . . 3
————— finger, . . . 2	————— by excision of minute
Bronchotomy, . . . 3	portion of tunica vaginalis, . . . 4
Extirpation of mamma, . . . 3	Ligature of femoral artery, . . . 1
————— labii pudendi, . . . 1	Polypus nasi, extraction of, . . . 1
————— tumour, . . . 1	Stricture of rectum, division of, . . . 1

The thigh, arm, and fore-arm, were amputated by forming a double flap with Lisfranc's knife. In such cases this operation appears to me decidedly preferable to the ordinary circular amputation. The operation occupies less time; the patient, therefore, suffers less pain; the healing is more expeditious, and the stump is certainly better. I have never experienced the difficulty, apprehended by some, of securing the blood-vessels, in consequence of their being divided obliquely; nor have I seen the cut muscles exhibit an uneven ragged surface, when attention was paid to the position of the limb while the flaps are being formed. All the above cases were successful.

The amputation of the penis, as already noticed, terminated fatally. The patient, 66 years of age, besides a cancerous affection of the whole penis, had an indurated gland in the groin, which it was my intention to have extirpated along with the penis; but after the removal of the penis he resolutely refused to allow the gland to be touched. The wound did well, but the tumour in the groin inflamed, suppurred, and left a foul sloughy sore, under which the patient sank.

Two of the cases of extirpation of the mamma proved fatal. The one patient died of pleuritis supervening after the operation, the other from sloughing of the wound and exhaustion. The remaining case was successful.

The femoral artery was tied in the case of a boy who had received a wound in anterior part of upper third of thigh. As the wound was a lacerated one, the artery had not bled so profusely as to cause immediate death. When the boy was brought to the hospital, an hour after the injury, the bleeding had ceased, his face was deadly pale, and his extremities cold. The artery was immediately secured, but neither heat, frictions, nor various stimulants, which were administered, could rouse him from the state of extreme depression, into which the shock of the injury and the loss of blood had thrown him. He died in less than two hours after admission.

All the remaining operations were successful.

16, Moore Place, September 23, 1828.

VIII. *Case of Spinal Neuralgia*. By JOHN ALLAN.

MARY DURAND, a single woman, 24 years of age, applied to me on the 25th of June last for relief, complaining of pain in the left side, under the mamma, not in the gland. The pain was much aggravated by pressing with the fingers against the

ribs, and sometimes, she said, it extended down the side, as far as the crest of the ilium. It was accompanied with pain at the top and towards the back part of the left shoulder, which she described as a sensation of burning, not interfering with the movements of the joint, but so tender to the touch was the part, that she could not rest on that side in bed, and always awoke in severe pain, if she happened to turn upon it. She had not been altogether free from either of those pains for nearly four years, but they had always been worse for a few months every spring and autumn. About seven years ago she had been suddenly attacked, while kneeling, with severe pain in the left knee, darting up the thigh and into the loins. Considerable swelling and local inflammation had then appeared in the knee, but were soon removed, while the pain in the knee and loins lasted, with little or no intermission, for three years and a half, when, while walking, she was surprised to find her lameness suddenly leave her, and, at the same instant, the pains in her side and shoulder came on for the first time.

Her complexion was pale and sallow, with an aspect expressive of habitual suffering. Her tongue was slightly furred and moist; pulse feeble. She was emaciated, and had no relish for food; bowels inclined to costive. She had begun to menstruate very soon after 12 years of age, but the discharge had never occurred oftener than once in five or six weeks. The discharge was copious, unaccompanied with uterine pain, and generally lasted for eight days. About two years ago, however, it had become less in quantity, of a paler colour, and accompanied with pain, though still lasting eight days.

Having perused Dr. Brown's paper on Irritation of the Spinal Nerves, shortly before this patient presented herself, I was led to examine her spine, when I found that there were three or four of the middle dorsal vertebræ, the most moderate pressure upon which gave her considerable pain in the part, and increased that in her side. She had never previously felt pain in that part of her back, although the tenderness was too unequivocal, and too distinctly limited in extent, to leave any doubt as to its reality.

A few leeches being applied over the tender part of the spine, she was surprised to find the pain in her side immediately relieved. Thus far Dr. Brown's observations were curiously confirmed. My acquaintance with the powers of subcarbonate of iron, in relieving pain of the neuralgic kind, of which I considered this to be an example, induced me to prescribe one drachm to be taken three times a day. At the

end of a week after this treatment was commenced, she declared herself more free from pain, than she had ever been during the seven years that had elapsed since the pain first began in her knee. Her countenance was visibly improved, both in expression and complexion, and the pain had become intermitting, recurring every evening only, instead of being constant as heretofore.

• The periodical character now displayed by this affection, induced me to give, instead of subcarbonate of iron, powder of bark, and carbonate of soda (ten grains of each), every four hours. A blister was likewise applied to the spine. At the end of another week the pain was still less troublesome, and the blister being healed, the spine was directed to be rubbed every night and morning with ointment containing tartrate of antimony, and the bark and soda were continued, On the 14th of July she complained of constipation with headach, and heat of skin, on account of which, and with a view to bring on the menstrual discharge, I gave her half an ounce of oleum terebinthinæ, with the same quantity of castor oil. This dose not having acted on the bowels, she took at bedtime a powder containing three grains of calomel, with fifteen of jalap. This medicine brought away a large quantity of a highly offensive fæces of a bottle-green colour. She was now directed to take half a drachm of oleum terebinthinæ, mixed with five minims of liquor potassæ, and half an ounce of cinnamon water, three times a day. The jalap and calomel were likewise ordered to be taken every second or third night. This practice being continued till the 4th of August, an enormous quantity of scybalous and green fæces, with four large lumbrici, and a vast number of ascarides, were discharged. The turpentine mixture was then ordered to be still continued, but instead of the jalap and calomel powders, a pill containing four grains of the compound colocynth pill, with half a grain of calomel, was directed to be taken every night and morning. This plan was pursued till the 18th of August, when the pains had completely disappeared, her alvine evacuations had become healthy, her complexion clear, her appetite good, and her nights passed in sound refreshing sleep on either side.

The only remark which I think worthy to be made on this case, is, that the neuralgic symptoms seemed to have been so severe and unremitting for so long a period of time, as to have drawn the patient's attention away from regarding those feelings which are frequently felt where so loaded a state of bowels exists, accompanied with worms. That the neuralgic pain was really dependant upon an irritable or tender con-

dition of a portion of the spinal marrow, there appears sufficient reason to believe. As soon as that local irritation was relieved by the treatment directed for it, the brain, sympathizing with the disordered state of the digestive organs, began to be the seat of pain and irritation. This led to the administration of those purgatives, by which the bowels were fully evacuated, and brought into a healthy state. I cannot conclude without stating, that I think the profession considerably indebted to Dr. Brown, for the valuable paper already referred to.*

Epsom, 15th September, 1828.

IX. *Observations on the Utility of the Tartrate of Potash and Magnesia as a Purgative.* By WILLIAM DAVIDSON, Member of the Faculty of Physicians and Surgeons, Glasgow.

ADDITIONS to our *Materia Medica* are by some reckoned altogether unnecessary; and by most medical men examined with some degree of scepticism. This observation applies more especially to those classes of medicines, in which there are a great number of substances that produce similar effects on the human body. Purgatives constitute a numerous class of this kind, and though in them our choice may be varied and extensive, practitioners have occasionally to regret the failure or inefficiency of them all. It is in all cases a desideratum, that a purgative should not be disagreeable to the taste, and that it should not be liable to excite nausea; for if it possess any of these qualities, it will often be set aside with disgust by the patient, or be altogether ejected from the stomach. In recommending the tartrate of potash and magnesia as a purgative, it will no doubt be expected by some, that it should possess decided advantages over those already in use. But even though it came forward with no other pretension but that of equality with others, it would be entitled to our attention, as increasing the materials of useful knowledge. But as it claims not only equality, in operating powers, with our best saline purgatives, but the additional property of occasioning less disgust to the organs of taste, than others of the same class, it is certainly entitled to be ranked in this very useful class of medicines. All that is intended in this paper, is to call the attention of the profession to a combination of two substances, which separately, are very extensively employed. Cream of tartar and magnesia, when used separately,

* Glasgow Medical Journal, No. II.

act in a way very different from what they do when used in combination. The first acts as a diuretic, and is liable from its excess of acid, when used often, to injure the tone of the digestive organs. The second is useful only when there is acid in the stomach to combine with it, and form a neutral salt. But when these two are united together in proper proportions, they form a purgative salt, at least equal to the sulphates of soda and magnesia. It seems to act on the same principle as other saline purgatives, in occasioning thirst, in producing a considerable quantity of watery stools, and in causing thorough evacuation of the bowels. In the commencement and during the early stage of fever, and in pneumonia, I have generally exhibited from 1 to $1\frac{1}{2}$ oz. of the salt, and found that it acted powerfully, and generally produced a good effect. The doses were repeated during the course of the fever, and were proportioned as circumstances required. In gonorrhœa, when combined with nitrate of potass, it forms a cooling aperient in doses of two teaspoonfuls every night. In eruptive diseases it relieves the external heat, and should frequently and freely be had recourse to. In psora it has often been used with good effect, when mixed with sulphur. When combined with a little more magnesia, than is sufficient to saturate the acid of the tartar, it forms an excellent purgative after a drunken debauch. With one or two exceptions, it has never been rejected by the stomach, and I have used it for the last 12 months in the great majority of cases where saline purgatives are exhibited. 1 lb. of cream of tartar is generally mixed with 2 oz. of calcined magnesia, by trituration in a mortar; and $1\frac{1}{2}$ or 2 oz. of the combination is exhibited to an adult for a full purgative, in 6 or 8 oz. of cold water. It is of advantage to keep the powder dry, for when moisture is prevented from coming in contact with it, till the moment it is to be swallowed, the two substances of which it is composed, do not enter into chemical union till they enter the stomach; and consequently there is the agreeable taste of the cream of tartar, in place of the slightly bitterish taste of the newly formed neutral salt. When magnesia and cream of tartar are added to water at the same time, and well agitated, the sour taste of the tartar is neutralized in a few minutes, and the solution has a bitterish taste, and indicates neutrality by test paper. From this experiment, it is clear, that the acid of the tartar must be neutralised almost immediately after the salt is swallowed.

The following method was employed to ascertain whether the quantity of magnesia employed was sufficient to saturate the excess of tartaric acid. 120 grs. of Venetian cream of tartar

were dissolved in about 16 oz. of boiling water, and well calcined magnesia was added during the ebullition, till it ceased to be dissolved. On weighing what remained of the magnesia, I found that 12 grs. had been required to saturate the excess of acid. The solution, when evaporated till a white powder began to be deposited, had a slightly bitterish taste, and on cooling, threw down small crystals aggregated together. A portion of the solution was evaporated to dryness; but it afterwards deliquesced on exposure to the air.

In order to ascertain if crystals of any size could be obtained, 4 oz. of cream of tartar were dissolved in a large quantity of boiling water, and saturated with magnesia. The solution was poured into plates and exposed to the air, and in a few days crystals began to be deposited. First a crystallized pellicle was formed on the surface, and very small crystals were deposited at the bottom and sides of the vessel. By and by larger crystals were thrown down, some of them about a line in length, and they appeared to be of a rhomboidal shape.

These crystals are almost tasteless, and nearly insoluble in cold water, and boiling water dissolves only about an hundredth part of them. Though these experiments were undertaken solely to ascertain the proportions for medical purposes, yet it may be worth while to show how nearly they agree with the atomic proportions: 1 atom of bitartrate of potass weighs 24.75, and it contains tartaric acid in excess, 1 atom, which weighs 8.25. This will require for saturation 1 atom of magnesia which weighs 2.5. Therefore 24.75 of the bitartrate of potash will require 2.5 of magnesia, or 1 part of magnesia to 9.9 of the bitartrate of potass. According to the trials which were made, 1 part of magnesia saturated 10 of the bitartrate of potass. But as the bitartrate of potass and magnesia are both variable in quality, 1 part of magnesia to 8 of the bitartrate of potass has generally been used, in practice.

Glasgow, 6th July, 1828.

X. *Observations on Polypus of the Uterus*. By JOHN MACFARLANE, M.D.

THE term polypus is now applied by all practical writers, to such uterine tumours only as grow from some part of the internal surface of the womb, possess a pyriform shape, and are covered by a mucous membrane.

The apparent rarity of this disease even in the practice of

many able and experienced practitioners, will, I am afraid, be occasionally found to proceed from a want of care in discriminating between various morbid states of the uterine passages, which, although accompanied by vaginal discharges, and other symptoms of a general character, are in their nature extremely dissimilar. Hence, we are too apt to employ the same routine of practice, for every form and combination of disease in this situation, without making ourselves accurately acquainted with the actual condition of the parts, of which the different discharges are often mere symptoms. It is only, therefore, by examination, *per vaginam*, that we can obtain the necessary information; and were this precaution more frequently adopted in women liable to habitual hæmorrhages, and to mucous, sanious, or watery discharges from the vagina, polypus would certainly be found to be a much more frequent disease.

I have no intention, in the following paper, of examining into all the varieties of this disease, or of adopting any of the numerous and often fanciful classifications which have been laid down by various authors; but only to confine myself to some of the more prominent and important topics suggested by the cases that have come under my own observation. In classifying uterine polypi, Deschamps, Alibert, and others have been guided by their texture and consistence, dividing them into the vascular, fungous, fibrous, sarcomatous, osseous, &c.; by Levret, they have been named according as they are attached to the fundus, body, or cervix of the uterus; by Roux, according to the texture from which they originate, as from the submucous cellular tissue, from the proper substance of the uterus, and from its external surface; while by others, the distinctions are taken from the position of the polypus, its being confined to the cavity of the uterus, having passed through the os uteri, or from hanging low in the vagina. As many of the above distinctions are purely theoretical, and can have no practical tendency whatever; and as they will seldom be appreciated during the patient's life; we will substitute for them the following arrangement, which is sufficiently simple for our present purpose, and obviously of some practical importance.

1st, Simple or benign polypus, of whatever texture, and to whatever part of the uterus it may be attached, provided it has undergone no malignant change, and the uterus itself is free of disease.

2d, Where the polypus has either undergone a cancerous or other malignant change, or is complicated with organic disease of the uterus. So far as the surgical treatment

of this disease is concerned, it is obviously of the highest importance to ascertain the condition of the tumour, and state of the uterus, before we undertake any operation for its removal.

I. Although many accidental varieties may be discovered in the structure of uterine polypi, it will generally be found, that they are of a firmer and more fibrous texture, than those which arise from any other cavity of the body. This may depend on the nature of the part from which the disease originates, or the thickness and vascularity of the uterine substance; and in consequence of the condensed texture of the mucous membrane, and its very intimate adhesion to the parts below, more resistance may be here offered to the development of such tumours, than is likely to be encountered in any other situation.

The repeated and sometimes profuse hæmorrhages which take place from the vagina, during the progress of this disease, have been attributed by Sabatier, Levret, Herbiniaux, and other writers, to the pressure of the os uteri on the neck of the tumour, impeding the return of blood, and causing engorgement and rupture of the superficial vessels. The same circumstance has also been assigned as the cause of the pyriform shape of uterine polypi: it is evident, that when the tumour has passed through the os uteri into the vagina, it will enjoy more room for expansion, than when confined to the cavity of the uterus; and on this account, as well as from the impediment to the free return of blood, in consequence of the pendulous state of the tumour, we find, that the inferior part is considerably more developed than the superior. But the pyriform shape, and narrow pedicle, so characteristic of this disease, are often observed before the polypus has emerged from the uterus. I have met with three cases, in which this point was verified on dissection, and I have seen several other preparations illustrative of this fact.

CASE I. Mrs. O., aged 41, requested my advice on the 14th September 1818, on account of alternate discharges of blood and mucopurulent fluid from the vagina, which had commenced about two months after the birth of her third child, and continued for nearly two years: she was much exhausted, her countenance blanched, breathing hurried, and her pulse above 100, and feeble. She complained of pain in the lumbar region and thighs, with an uneasy weight in the vagina, when she was erect; and occasionally the urine was obstructed. On introducing the finger into the vagina, the os uteri was felt about an inch and a half from the vulva; it was slightly open, but otherwise natural. The uterus felt

heavy when raised on the finger, and behind the neck its walls bulged out, and appeared to be either thickened, or separated by some internal cause. She died about the end of the following December, of tubercular phthisis. The uterus was found after death to contain a polypus as large as a hen's egg, having a small pedicle which was attached over the opening of the right Fallopian tube.

We have no means of correctly ascertaining the existence of a polypus, until it has opened the os uteri and passed into the vagina. The following case is curious, as illustrating the success of a diagnostic conjecture, while the tumour was confined to the womb; the efficacy of the ergot of rye in expelling it, and the spontaneous cure that was effected by ulceration of the pedicle.

CASE II. The widow of a sea-captain, residing at the Broomielaw, applied to me in February last, on account of profuse and almost daily discharges of blood from the vagina. These had existed for ten months, previous to which she had had for some years an almost habitual leucorrhœa. Her health had suffered considerably, her appetite was greatly impaired, and she was unfit for any exertion. She was confined in a recumbent posture; mild laxatives and enemata were employed to obviate constipation, acids were given internally, cold was freely applied to the abdomen, and astringent lotions injected into the vagina, after which a plug was ultimately introduced. When this plan of treatment had been carefully persisted in for three weeks, without the slightest benefit, I requested permission to make an examination. The os uteri was so far open as to admit the point of the finger, but neither tumour nor any other indication of disease was discovered in this situation. As in the last case, however, there was an apparent, but not very obvious enlargement of that viscus. This might depend on various causes: but as it was possible that a polypus or some other tumour existed in the uterus from which the exhausting hæmorrhages proceeded, it occurred to me, that the ergot of rye might be advantageously employed. As the character of this patient was highly respectable, and I had no reason to believe, either from the history of her complaint, or from her appearance, that she was pregnant, I anticipated no bad consequences from a trial of this remedy; a drachm of the ergot was therefore infused in 4 oz. of boiling water, and 1 oz. administered every two hours, without producing any perceptible effect. On the following day, having obtained from a different source, another quality of this medicine, an infusion of the same strength was prepared, and administered in the same manner.

After the second dose, severe and rather continuous pains were produced, which lasted more or less for about eight hours after the fourth dose was taken. I was requested to visit her during the night, when I found a smooth firm tumour projecting at the os uteri, about the size of a small lemon. In a few hours the bulkiest part of it had passed into the vagina, and the slender pedicle could be felt with the finger. Our object was now so far attained, but as there existed great irritation in the uterus, with frequent pains, which distressed her much, several doses of laudanum were given before these were removed. On the 4th day from the last administration of the ergot, she felt something fall down and press against the perinæum, on rising to void her urine. This was found to be the polypus detached at the pedicle, and was readily extracted by the fingers. She had two slight returns of floodings, but in a few weeks was restored to her former good health.

The known efficacy of the ergot in exciting uterine contraction, will readily suggest, in cases analogous to the above, the employment of this medicine, in preference to every other means, whether medicinal or mechanical. It is certainly superior in every respect to a practice alluded to by Gardien, in his "*Traité d'Accouchemens*," tome i. p. 430, in which a M. Bonnie dilated the os uteri by means of sponge tents, and afterwards applied a ligature to the polypus.

A spontaneous cure is sometimes effected when the pedicle is small, either by the neck of the uterus firmly compressing it; or more frequently the propulsive efforts of the uterus, by stretching the pedicle, causes it to ulcerate. This termination is by no means so common, however, as many authors would have us to believe. I have had frequent opportunities of examining tumours thus expelled, several of which were pronounced to be polypi; but after careful examination, the one above referred to was alone entitled to be considered as a specimen of this disease. The others were either the fungous excrescences, denominated "*vivaces*" by Levret, and supposed to arise from an ulcerated spot in the cavity of the uterus; or more generally fleshy moles, now believed to be the product of conception. The true polypus which was separated by the action of the uterus, was of a firm texture, covered by a mucous membrane, and weighed about 6 oz. Its substance was dense and homogeneous, showing only a slight fibrous appearance about the pedicle; a small portion of which was attached, and about the size of a quill. The one half of this specimen was carefully dissected, and the other macerated, but without throwing any light on its structure or mode of

growth. The mucous coat, after a few days, was easily separated, and the great bulk of the tumour that remained, broke down under the fingers, showing in some parts a lamellated arrangement of its texture. In this, as in every other specimen of uterine polypus which I have had an opportunity of examining, no very obvious disease of the mucous membrane was discoverable. It was sometimes found slightly thickened, irregular, and traversed by enlarged veins, but was always separable from the surface of the tumour; and it never appeared as if the whole bulk of the polypus had depended "on a morbid change of that membrane, and a slow subsequent enlargement of the diseased portion;" a circumstance which Dr. Burns, in his excellent "Principles of Midwifery," considers as the most frequent variety of the disease. From whatever part or texture of the uterus the disease originates, it is probable that in a great majority of cases the mucous tissue of this viscus is not its primary seat; but that in consequence of the tumour being developed behind it, it is gradually pushed forward, becomes elongated, and is afterwards liable to slight morbid changes, arising chiefly from mechanical distention or chronic inflammation. There is reason to believe, however, that in very large and old polypi, particularly in those which have a tendency to assume a malignant action, the mucous envelope will be found so much changed and assimilated to the morbid mass which it covers, as to have lost its natural appearance and distinctive characters.

Several well authenticated cases on record prove that pregnancy is not incompatible with the presence of a considerable sized polypus in the uterus. In some, the existence of this disease was ascertained before impregnation took place, whilst in others, it was recognized only after delivery. The following case presents an interesting, and in some respects perfectly *unique* example of this combination. I shall therefore detail it more minutely.

CASE III. Mrs. S., aged about 30, residing with her father, a respectable farmer, about 4 miles to the south-east of Glasgow, was taken in labour of her first child, on the morning of the 13th October, 1825. On visiting her at 10 o'clock in the evening, I found the pains regular, but indicating only the first stage of labour; the os uteri dilated to the size of a dollar; its edges soft and natural; the membranes protruding slightly during uterine action, and the child's head presenting. About one o'clock of the following morning, the os uteri was fully dilated, the membranes had given way, and the bearing-down efforts were forcible. About 4 the child was born; it

was feeble, and from its premature appearance, tended to corroborate her own opinion, that she was hardly eight months gone in pregnancy. In half an hour she had a slight bearing-down pain, by which the placenta was partly protruded. On attempting to remove it, by gently pulling the cord, a greater resistance was encountered than I expected, from its depending and apparently detached situation. This was ascertained by introducing the finger, to arise from the adhesion of the placenta to a large, firm, globular tumour, which filled the vagina, and rested on the perinæum. The centre of the placenta opposite the cord adhered to the apex, and the rest of the placenta embraced the sides of the tumour; from which, however, it was nearly detached. While making this examination, the placenta was wholly separated and extracted, and the hand speedily introduced into the cavity of the uterus, to ascertain the nature and connexions of this tumour. I imagined at first that the uterus was inverted, but the absence of every bad symptom for half an hour after the birth of the child, and the circumstance of the cord having been free and of sufficient length, and no force employed, rendered this opinion less probable. The tumour was easily pushed up before the hand, when a firm polypus of immense size was found growing from the very centre of the fundus uteri, which from its weight and descent with the placenta, had caused a partial inversion. When this point was rectified, I examined the tumour more minutely. It was of almost cartilaginous hardness, and intimately attached to the uterus by a pedicle as thick as the wrist. About 2 inches and a half from its origin its size gradually increased, and the depending part was larger than a child's head at birth. It was smooth to the feeling, except at the apex, where the roughness was occasioned by the attachment of the placenta. I grasped the neck of the tumour, and by supporting the fundus uteri with the other hand, applied to the parietes of the abdomen, while I made gentle attempts to move the pedicle, I ascertained the extent and firmness of its attachment. This was evidently such as to render any attempt to twist off the tumour, more likely to lacerate the substance of the uterus than the pedicle. During this examination, which did not occupy above a minute and a half, blood was profusely issuing from the apex of the tumour. It was prevented from escaping while the hand was in the vagina, but rapidly accumulated within the uterine cavity. The clots were scooped out, and the uterus excited to contract as much as was compatible with the presence of such a large body within its cavity. By this means I did not expect that the hæmorrhage would be arrested by the pressure of the

contracted uterus on the surface of the polypus, as the apex of the tumour, from which the blood flowed, was lying in the vagina, but only that general diminution in the size of the uterine vessels, which takes place after every natural labour, with a consequent reduction in the quantity of blood sent to the polypus. It was found, however, when the hand was withdrawn, that blood continued to flow freely from the vagina; and in a few minutes the pulse became indistinct, and she complained of approaching syncope. The pillows were removed from under her head, cloths moistened with cold water were freely applied to the vulva and abdomen, and the windows of the apartment thrown open. For half an hour a few ounces of fluid blood were discharged, after which there was no external hæmorrhage. The symptoms, however, continued to increase, and become still more alarming. The lips were colourless, the body cold and clammy, the pulse feeble, fluttering, and sometimes for 3 or 4 minutes imperceptible, with laborious breathing, and great jactitation. About half-past five, in consequence of the alarming appearance of the patient, and the great anxiety of the friends, a messenger was despatched to request the immediate attendance of Professor Towers. In the mean time the cold applications were continued, pressure was applied over the fundus uteri, and with some difficulty she was persuaded to swallow a quantity of undiluted whisky, every three or four minutes. Some laudanum was procured in the neighbourhood, and ten drops of it, mixed with half a glass of whisky, and an equal quantity of hot water, were given every ten minutes. Mr. Towers arrived at half-past seven, and on introducing his hand, he found the tumour of the kind, and in the situation I had previously explained to him. He removed a few small clots on withdrawing his hand; but the hæmorrhage had ceased for nearly two hours. At this time she was extremely exhausted, and had a most alarming appearance. The stimulants were regularly administered; either whisky or brandy, joined with laudanum or the black drop, (a bottle of which Mr. Towers had brought with him), was given, as often as the pulse became imperceptible. She was at times insensible, and her anxiety and restlessness were uniformly aggravated for about half a minute after the stimuli were administered, when the pulse became rather more distinct. When she slumbered for a minute or two, she always exhibited symptoms of great distress when she awoke. Bottles of hot water were applied to the extremities and trunk, but her incessant restlessness prevented them from being effectual in raising the temperature; and hartshorn was applied to the forehead and nose.

These means were assiduously employed during the whole day, with the effect of only rousing her at intervals, and rendering the pulse a little more distinct for a few minutes, when it again sunk, and the train of urgent symptoms immediately re-appeared. About 4 o'clock, P. M., the pulse became more perceptible, the breathing more calm, and the countenance less anxious. I gave her then a drachm of laudanum in a glass of brandy, which in a few minutes procured sleep, that lasted for an hour. After this her pulse became fuller, and the colour of her face and heat of skin somewhat improved. At six, I left her in charge of one of my advanced and most intelligent pupils, Mr. (now Dr.) Hugh Wood of Dumfries, with orders to remain with her during the night, to administer small quantities of brandy for an hour or two till re-action was fairly established; and if for two hours the pulse continued to improve, to desist from the stimulants, but to give beef-tea at short intervals during the night.

On the following morning she was remarkably easy. The pulse was rather full, and about 100 in the minute: she had considerable heat of skin; slight uneasiness in the hypogastrium; urgent thirst; headach, and vertigo: lochia plentiful. She was enjoined to be kept quiet and cool; to have gruel; to omit all kinds of stimuli, and to take a dose of castor oil.

On the 15th, she had severe pain in the hypogastrium, occasioned by inability to void urine. The catheter was employed with immediate relief, and had to be introduced twice daily till the 25th, and as the discharge was foetid, injections of tepid water were frequently thrown into the vagina. The depending part of the polypus was within half an inch of the vulva. It completely filled the vagina, and pressed on the neck of the bladder. In a few days, from the acrid quality and abundance of the discharge, which resembled dark bloody serum, the vagina and labia became painful and excoriated. Frequently bathing the parts with a cold infusion of camomile, and injecting three times a day a strong decoction of oak-bark and alum into the vagina, afforded her considerable relief.

On the 21st, the discharge was less irritating and offensive. She had pain only when the bladder was distended, and the pulse had fallen to 90, but was weak. The antiphlogistic regimen was now a little relaxed, and she was allowed beef-tea, chicken-broth, arrow-root, and similar mild nourishment.

From this period she slowly recovered, and was able to be out of bed in about three weeks; but she was for some time longer much annoyed when in an erect position by the weight of the tumour, and she was only able to void urine when lying on her back, with the head low, and the breech elevated. In

about three months, the tumour had decreased so much, as to give her little uneasiness either from its bulk or weight. It was then about the size of a large orange; and I have reason to believe, from her own statement, as well as from that of her husband, that it has not been increasing; but although I have often seen her since that time, I have had no opportunity of making an examination. She has never enjoyed good health since her delivery; she continues pale and sallow; altogether, she appears as if 10 or 15 years had been added to her age. She has at variable intervals had repeated attacks of hæmorrhage, with an almost constant discharge of a thin dark coloured fluid like moss water, or of mucus more or less mixed with blood. I have often prescribed for the relief of these symptoms; but every attempt has hitherto failed in persuading her to submit to ligature of the tumour.

It is probable, as there existed in this case no symptom indicating the presence of uterine disease previous to impregnation, that the polypus, if then developed, must have been extremely small, and that it gradually increased in size in proportion to the growth of the placenta which was attached to it. From the general enlargement and activity of the vessels of the uterus, during the whole period of utero-gestation, it is evident, that every adventitious tumour attached to this organ will, during that period, increase in the same ratio with the uterus itself, from its receiving the same increased supply of blood. This result will, however, be more obvious when, as in this case, the blood destined to the nourishment of the fœtus has to pass and repass through the tumour; and it is to this circumstance we are to attribute in some measure its rapid growth. The great diminution that took place in the polypus soon after delivery, evidently showed that its previous large size depended more on its adventitious attachments to the placenta, than on a gradual augmentation of its substance. I consider the adhesion of the placenta to the tumour alone, and its having no connexion with the uterine surface, as the most curious part of this singular case.

The quantity of blood lost was small, in proportion to the long continuance and alarming appearance of the symptoms, and the previously robust condition of the patient. I have often seen more blood lost after an ordinary labour without any disagreeable symptom supervening, yet to this source alone are they to be referred; for it was apparent, that had stimulants not been immediately and unceasingly administered, the vital powers would have sunk irrecoverably. It was found, that during the twelve hours' continuance of this treatment, viz. from 5 A. M. to 5 P. M. she had taken about

17 oz. of ardent spirits, ʒj. of laudanum, and nearly half a bottle of the black drop, without deranging the stomach, or inducing the slightest tendency to intoxication. From the firm texture of the tumour, and the great thickness of its pedicle, I am convinced, that although a ligature had been accurately and tightly applied to its neck, the bleeding would not have been arrested; for when I grasped the pedicle as firmly as possible with the hand, it had no effect in restraining the hæmorrhage.

When a polypus of the uterus is first discovered immediately after delivery, it is important to consider whether we should then attempt its removal by ligature, or delay for some months until the womb has regained its natural size. It may be argued, in favour of an immediate operation, that from the dilated state of the os uteri and neighbouring parts, the hand can be introduced with ease, the exact attachment of the tumour ascertained, and the ligature applied as near the root as may be necessary, having it thus in our power to avoid including any part of the uterus—that many women who are easily alarmed at the prospect of the most simple operation, would more readily submit during that period of comparative ease and comfort, which immediately succeeds the painful process of parturition, than when the mind has had time to call up the ideal difficulties and dangers which not unfrequently present themselves—and that it might even be applied without the patient's knowledge, and thus the exhausting discharges, and consequent bad health which usually succeed, would be avoided. There are a very few cases on record in which this treatment was adopted with success. Mr. Bell of Forres details a case in the *Edinburgh Medical and Surgical Journal*, vol. xvi. in which a polypus of about six pounds weight was tied, after an instrumental labour, without any disagreeable consequences; and M. Deguise,* after delivering a woman of twins, applied a ligature to the pedicle of a polypus, "du volume d'une poire de bon chretien," which separated on the 8th day.

On the other hand, by delaying the ligature for some months, we expect that an obvious diminution will take place in the size of the tumour, in consequence of a decrease in the size and activity of the uterine vessels, and that we are less likely to encounter urgent or alarming symptoms from this measure, when the uterus has returned to its former volume, than when enlarged, irritable, and its vessels still active—a state of parts known to exist for some time after labour has been

* *Nouveau Journal de Médecine*, tom. ii.

completed. Under the most favourable circumstances, this operation is not unfrequently attended by painful and somewhat urgent symptoms; and several cases are recorded by Denman, Levret, and others, in which it proved fatal in some cases from hæmorrhage, and in others by the supervention of peritonæal inflammation. Now, such occurrences are obviously more likely to happen after delivery, than when the disease is unconnected with pregnancy. No doubt, if the pedicle is small, and the woman neither of an irritable habit, nor prone to inflammatory attacks, it may then be safely tied; but as a general rule, we ought to defer this operation until both uterus and polypus have considerably decreased, when it may be undertaken with less risk to the patient. It might be supposed, that as a polypus is not a natural part of the human body, but a morbid growth, no danger could attend a ligature of its pedicle, provided no part of the substance of the uterus was included. But it is impossible to tie an uterine polypus, without including its external covering, which is formed by an elongation of the delicate and sensible membrane that lines the cavity of the womb, and it is to this circumstance that many of the urgent symptoms resulting from this operation are to be referred. I have observed, and the same remark has been made to me by others, that the symptoms become less urgent, so soon as the mucous coat has been fairly divided by the ligature, and that the remaining substance, being less sensible, may be compressed with greater impunity.

CASE IV. On the 15th March, 1826, I was requested by a midwife to visit Mrs. W. about an hour after she was delivered of her third child, in consequence of a tumour presenting in the vagina. She had had an easy and natural labour; the placenta was retained, and the hæmorrhage moderate. On examination, I found a large, firm, insensible, and rounded tumour completely filling the vagina, and protruding slightly at the external orifice. She had a pale exhausted appearance; her pulse was quick and feeble, and she was faintish. The placenta, of course, could not be felt, but the cord was traced over the pubal surface of the tumour. On raising up the tumour, a large quantity of fluid and coagulated blood escaped—it being now evident that the internal hæmorrhage had exhausted the patient, and been prevented from appearing externally by the plugging of the vagina with the tumour. As it became an object of importance to excite uterine contraction, to have the placenta expelled, and to ascertain the state of the tumour, the hand was introduced. The polypus was nearly as large as a child's head at birth, smooth and regular on the surface, of semi-cartilaginous hardness, and

attached to the posterior wall of the uterus, about two inches from its orifice, by a pedicle about an inch and a half in circumference, and three inches in length. The pedicle was softer than any other part of the tumour, and might have been easily separated from the uterus by a little force; but as the arteries passing to the tumour were of considerable size, and could be felt pulsating firmly, this procedure was not adopted, lest troublesome hæmorrhage should supervene. The placenta was soon detached from its connexion with the fundus, and expelled along with the hand; the polypus again descending into the vagina. On the contraction of the uterus, the hæmorrhage gradually ceased, and the pulse soon regained its former strength. It was found necessary for several days to use the catheter, and occasionally to push up the tumour, to permit the escape of the lochial discharge. She had a smart attack of irritative fever on the 19th, which continued for 10 days, accompanied with a copious discharge of thin, dark coloured, and fœtid fluid from the vagina, producing painful excoriations. Astringent injections were thrown into the vagina, and the fœtor destroyed by a frequent use of the solution of the chloride of lime. About three weeks after delivery, the tumour had shrunk so considerably, as to allow the finger to pass freely around it, and only gave her uneasiness when she assumed an erect position. There were now several excavations discovered in the inferior part of the tumour from ulceration, into one of which the finger passed for a quarter of an inch, and from which a very offensive pus was discharged. From being formerly robust and florid, she had become pale and exhausted. Mild nourishment, tonics, consisting of bitters, mineral acids, and chalybeates, were administered, to support the strength; and various local applications used from a desire to delay the application of a ligature, until it had been ascertained whether there existed any probability of the tumour being gradually destroyed by an extension of the ulcerative process, which had already commenced. The occasional feeble vitality of such tumours, and the opinion of Ledran that cures have been effected by exciting artificial ulceration in the diseased structure, rendered this conjecture somewhat plausible. At the end of two months, however, it was found that the ulceration had ceased to extend; and although no attempt had been made to fill up the loss thus produced, it was evident, from the smooth and regular feeling, compared with the previously ragged and uneven condition, that partial, if not complete cicatrization had been effected—a conjecture that was subsequently found to be correct.

On the 26th of June, at the earnest request of the patient, and in the presence, and with the concurrence of the late Dr. Nimmo, I proceeded to apply a ligature of strong silk cord to the root of the polypus. The patient was placed on her back, with the breech projecting over the edge of the bed, and the thighs drawn up to the abdomen, and the double canula, armed with a ligature, was guided along the finger, which was introduced within the os uteri. When the instrument reached the neck of the tumour, which was accomplished without difficulty, as the os uteri was open and dilatible, and the exact part of the uterus from which the disease originated, was previously well ascertained, one-half of the canula was, with the ligature attached to it, cautiously carried round the tumour till it returned to its original situation; and having ascertained, by passing the finger around the pedicle, that no part of the uterus was included, the ligature was gradually but firmly tightened, and the ends secured to the canula which hung from the vagina. She complained immediately of acute pain, which in a few minutes became so severe, that she could hardly be persuaded to submit to its continuance. She was naturally irritable, and as the severity of the pain so immediately after the tightening of the ligature could not possibly arise from inflammation, I determined to allay it by full doses of opium. Accordingly, fully \mathfrak{v} ij. of laudanum were given during the first six hours, before the urgency of the symptoms diminished, or any obviously anodyne effect was produced. During the two following days, \mathfrak{v} . more were given, in addition to which, fomentations to the abdomen, tepid injections into the vagina, and enemata, were the only remedies employed. She dozed a good deal, and after the first 24 hours complained only of pain, when she omitted the opiate. The pulse was soft and rather feeble, but did not exceed 100 in the minute. On the 29th, the ligature was again tightened, and excited a slight return of pain for an hour. It had only divided the pedicle to a small extent; the size and feeling of the tumour were unaltered, and there was only as much discharge of a thin bloody fluid as soiled the finger on making an examination. On the 1st of July it was again tightened. The discharge was now abundant and foetid, and the vagina and labia were excoriated, but these symptoms were ultimately much relieved by a solution of the chloride of lime. On the 3d, the ligature came away with the canula. The polypus, from its size, could not be effectually laid hold of with the fingers; it was, however, with some difficulty, extracted by a blunt hook. It weighed $18\frac{1}{2}$ oz., and exhibited, when cut into, a dense fibrous structure. Its

mucoous covering was considerably thickened, of a deep purple colour, in some places separated and disorganized.

The sanguineous discharge ceased in a few days after the detachment of the tumour, but there continued for three or four weeks a moderate leucorrhœa. She gradually regained her former health and strength, became pregnant in about six months afterwards, and was in due time delivered of a living child, without any return of the disease.

The practice of twisting off uterine polypi, either with the fingers or forceps, similar to those for extracting calculi, was at one time much resorted to, but has now deservedly fallen into disuse. Herbiniaux admits, that cures have in this manner been frequently effected when the polypus was small, and could not be easily surrounded with a ligature; but this circumstance, I imagine, will depend for its success, more on the small size of the pedicle, than on the small size of the tumour. Though the depending part of a polypus be large, it may have a small pedicle, and in this state, if the twisting force is gradually employed, the pedicle may be destroyed without the substance of the uterus being injured; but if the base is broad, the pedicle thick and short, and as generally happens in such cases, its fibres inseparably mixed with those of the uterus, any attempt to twist it off, would in all probability give rise to laceration of the womb. I have reason to believe, that this termination actually occurred, and proved thus fatal a few years ago, in the hands of a surgeon in this neighbourhood. It must be obvious, therefore, that as we are often unable to feel the pedicle, and cannot form a correct notion of its size, or the extent of its attachment, it would be highly rash and unwarrantable, to proceed under such circumstances, to the use of force for the removal of a polypus, when we possess a method which experience has shown to be more generally applicable, safe, and successful. There is another method which was long ago adopted, and appears to have been lately practised with success, by Dupuytren, in the Hôtel Dieu;* but which, although sanctioned by this eminent surgeon, is, in my opinion, unworthy of imitation. It consists in drawing out the polypus from the vagina, exposing the pedicle, and dividing it. In very relaxed habits, when the disease is complicated with a prolapsus uteri, and arises from the cervix, no great force will be required in completing the first stage of this process. When, however, the uterus retains its natural position, and the root of the tumour is broad, and attached near the fundus,

* Medical Gazette, vol. ii. p. 31.

we will seldom succeed in effecting our purpose, unless by tearing away the tumour, injuring the substance of the uterus, or causing its inversion. This latter occurrence is not so likely to happen when the tumour is fixed to the cervix, as when attached near the fundus, which is the most frequent seat of the disease. Besides, when the pedicle has been exposed and divided, we will generally find that the uterus at once resumes its former situation in the pelvis, so soon as the extracting force is removed, and that we may afterwards have a hæmorrhage which we can with difficulty suppress.

When much difficulty is experienced in extracting a large polypus after its pedicle is divided, Denman, and other systematic writers, recommend that it be allowed to remain in the vagina, until it either excites the expulsive efforts of the uterus, or becomes soft and disorganized. If after the ligature has separated, the entire polypus does not occupy the vagina, but a portion still remains within the uterus, in a situation to be acted upon by its fibres, we may expect that in some cases, the unaided efforts of nature will accomplish its expulsion. There can be little danger, I presume, in delaying for a short time, and attempting to excite uterine action, by a dose or two of the ergot of rye; but I would certainly object to the retention for days, of a large mass of dead and putrifying matter, in an excoriated and irritable vagina. The rigidity of the external parts in old women, who are often the subjects of this disease, particularly in those who have never borne children, will impede in a certain degree the removal of such tumours, but few cases will be encountered in actual practice, where either on this account, or from the large size of the polypus, properly directed manual or instrumental assistance may not be safely and successfully employed.

The inability to void urine frequently observed during the progress of this disease, generally depends on the sympathy between the os uteri and bladder; but rarely on the tumour filling the pelvis, and mechanically impeding evacuation. This occurred, however, in the following case; and I am indebted to Mr. Stirling, under whose care the patient was, for the following particulars. I had an opportunity, along with many other surgeons, of examining this case, and of witnessing the dissection.

CASE V. Mrs. C., a thin, exceedingly deformed woman, about 38 years of age, first applied to Mr. Stirling, in November, 1821, about nine months after her marriage. She had great pain and tension in the lower part of the abdomen, with inability to void urine; a catheter was with difficulty introduced on account of an immense tumour in the vagina,

which was discovered to be a polypus, although neither its pedicle nor the os uteri could be felt. Many years before she had a severe attack of pain, and swelling of the belly, which disappeared in a single night, after a copious discharge of purulent matter from the vagina, which continued for a long period. In consequence of frequent attacks of retention of urine, and as the tumour had descended so low as to protrude a little at the external orifice, it was agreed in consultation to remove it by ligature. She requested a few days' delay after the necessary preparations were made for the operation, which was granted. She was seized immediately afterwards with peritonitis and retention of urine, and it was found, after repeated attempts, that the catheter could not be introduced. As she had an urgent desire to void urine, and as the bladder appeared to be distended, it was agreed in consultation to puncture this viscus above the pubes. Only a small quantity of urine escaped, but she expressed relief from the operation. In two days after, she died, evidently from peritoneal inflammation. On dissection, the usual marks of peritonitis were discovered, with sero-purulent effusion into the abdomen. The uterus projected into the cavity of the abdomen, and equalled this viscus at the seventh month of utero-gestation. When it was cut out and inverted, the polypus was found to adhere by *three pedicles*, one about the thickness of the thumb attached to the fundus, and the other two a little distance from the former, and of smaller diameter. The surface of the tumour was smooth and white, and the structure almost cartilaginous. It weighed, with the uterus, upwards of seven pounds.

It is extremely rare to find a uterine polypus attached by more than one pedicle; but according to Levret,* it is by no means uncommon to find that it contracts adhesions to the cavity in which it is contained. As in the above case there was no appearance at the junction of the body and pedicles, as if the tumour had been originally formed of three separate parts, but as it exhibited a smooth, regular appearance, I think that the one attached to the fundus is the proper pedicle, and that the other two have probably arisen from some old adhesions between the tumour and uterus, which had become elongated by the weight and descent of the polypus. It would appear from a report in the *Lancet*, (No. 244,) that a case lately occurred to Mr. Lawrence, in St. Bartholomew's Hospital, in which it was found, on dissection, that the large pedicle of the polypus was attached "to the whole circumference of the os uteri." This

* Observations sur plusieurs Polypes de la Matrice. Trois. edit. p. 557.

could not have existed six months before her admission, when, in consequence of the tumour presenting in the vagina, she was delivered by the forceps, but I think adhesion had subsequently taken place between the os uteri and pedicle of the polypus, so as to cause this very broad and unusual attachment.

II. From whatever cause uterine polypi originate, whether they depend on the deposition of a small coagulum of blood, or of lymph, which becomes organized, on the enlargement of a lymphatic gland, or on the generation of a tubercle, as has been asserted by various authors, it is known that they are all liable to chronic inflammation, and we sometimes find that a gradual change is thus effected in their structure and organization, and that they ultimately assume an appearance of malignancy. This state, it must be acknowledged, cannot always be readily discovered. If the uterus is affected about its orifice, the disease tolerably developed, and the constitutional symptoms well marked, we will have little difficulty in our diagnosis; but the consistence of the polypus is seldom calculated to yield us any satisfactory evidence. Many such tumours have been successfully extirpated, without any tendency to reproduction, which, from their hardness, were believed to be scirrhus. Indeed, the structure, on dissection, of a firm fibrous polypus so nearly resembles scirrhus, as to render a mistake by no means improbable. In both forms, the affected portion consists of a hard condensed texture, of a whitish, or slightly yellow colour, irregularly intersected by thick membranous septa. By some authors, the sallow and cachectic appearance of the countenance, the copious discharge of bloody and foetid matter from the vagina, and the ulceration of the polypus, have been considered as accurate indications of a cancerous degeneration. But although these symptoms may attend this form of disease, they are also frequently present when the tumour is of a benign character, and the uterus unaffected. The unhealthy appearance of the countenance depends on the long-continued irritation, and exhausting discharges; the factor of these discharges, on the retention and decomposition of part of the effused blood; while the ulceration of the tumour cannot be considered as an indication of a cancerous action, for superficially ulcerated patches are not unfrequently found in the mucous texture of these tumours; and occasionally, as in case 4th, the ulceration extends more deeply. If the above symptoms exist in combination with severe lancinating pains in the region of the uterus, there will be grounds for believing that a morbid action has begun either in the uterus or polypus, for the removal of which our best directed efforts will prove unavailing. Still, if no very

palpable evidence of malignancy can be obtained by examination, we ought not, even under the above doubtful circumstances, to refuse our patients the chance of an operation.

Levret and other authors have recorded cases in which the malignant action originated in, and was confined to the polypus. More frequently the substance of the uterus is first affected, whence the malignant action gradually spreads to and involves the tumour.

CASE VI. M. G., a poor unmarried female, about 58 years of age, came under my care as a city-pauper, in August 1819. Her health had suffered much for three or four years from alternate muco-purulent and sanguineous discharges from the vagina. In the previous January she had an attack of the epidemic fever, was removed to the Infirmary, and dismissed in three weeks in a state of convalescence. From this time her strength gradually declined. She complained of violent pains in the hypogastrium, extending to the back, groins, and thighs, with foetid bloody discharges, excoriated vagina, and great ardor urinæ. She slept little, became extremely emaciated, her feet and legs œdematous, and her pulse, which was small and feeble, ranged about 120. Having, with difficulty, obtained permission to make an examination, I found the orifice of the vagina contracted, and its lining membrane inflamed and irritable. About half an inch within this canal, the finger came in contact with a firm rounded tumour, having, except at two small points, a smooth and polished surface. It had the feel and shape of a polypus, but neither the pedicle nor os uteri could be felt, as the upper part of the vagina was completely filled with cauliflower excrescences. As it was evident that the case was incurable, and as she complained acutely, I did not prosecute the examination farther. The lancinating pains were alleviated by opiate enemata and suppositories, and by tepid injections into the vagina, of a solution of the extract of belladonna. She died on the 21st of September.

On dissection, the uterus was found about four times the natural size, and had the shape of an hour-glass, from the enlargement being greater at the cervix and fundus. Its substance at the fundus was hard, irregular, tuberculated, in some parts ulcerated, and of a dense fibrous texture. From the centre of this diseased part, a pyriform polypus was suspended, which measured 4 inches in length, 3 inches at its most depending diameter, and an inch and a half at the root. It was covered by a mucous membrane, which was in some parts destroyed by ulceration. This had penetrated to some depth in several parts of the pedicle, causing two or three

irregular cup-like cavities. The tumour was throughout of a firm texture and fibrous appearance, but the pedicle was so dense, hard, and like the diseased part of the uterus to which it was attached, as to show that the cancerous action had extended to it, but had not involved the body of the polypus. The whole circumference of the os uteri was scirrhus, and covered with cauliflower excrescences.

It is not improbable, that in this case a simple fibrous polypus had been developed in the uterus before either the base or cervix of this viscus became affected, and that the malignant action commenced in the womb, and extended to the pedicle. "On doit regarder comme une axiome démontré qu' aucun polype n' est squirreux dès son origine."* This is a general assertion to which the most of the writers on this disease give their assent, while they believe that this unmanageable change may ultimately be induced in benign polypi, by a variety of causes. It was long ago observed by B. Bell and by Pott, that the danger is proportioned to the hardness of the tumour; those which are hard being found more difficult to extirpate, more easily reproduced, and more prone to end in scirrhus and cancer. If we admit that in many cases the fibrous polypus is so intimately attached to the uterus, as to present no obvious line of demarcation, we will have little difficulty in believing, that although its pedicle may be divided by ligature, yet from the breadth of its base, and the activity of its vessels, a secondary tumour may be speedily formed. In such cases, although the affected portion of the uterus may not exhibit the appearance of scirrhus, there at least exists a diseased activity in the part, which will seldom be controlled.

CASE VII. Mrs. A. G. requested my advice in April 1824, on account of general dropsy, under which she had laboured for several weeks. It was only a few days before her death, which took place on the 16th of May following, that I was informed she had been long affected with a disease of the womb. She had been liable for years to puriform discharges from the vagina, with occasional floodings, and she was aware of the existence of a tumour in the vagina for a year and a half before she submitted to an examination. About the end of December, 1823, it was ascertained by the late Mr. Tait of Paisley, where she then resided, that she had a polypus of the uterus; and as the disease appeared favourable, she was persuaded to permit its removal. This was accomplished in a few days by ligature. Mr. Tait afterwards informed me that it was of a pyriform shape, very hard, covered by a mucous membrane,

* Dict. des Sciences. Medic. tom. xliv.

and of a fibrous texture. About a month after the operation she had a return of the discharges, which were generally thin, bloody, and foetid; and she complained of dull pains, and weight in the back and pelvis. These symptoms continued with more or less urgency till her death, but on the appearance of dropsy, they ceased in some measure to excite her attention.

When examining the uterus after death, I found it filled by a tumour about the size of the fist, which arose from the fundus, and terminated in the vagina. It was very hard, and was tolerably smooth, with the exception of one or two irregular projections on its surface. It was very intimately attached to the uterus by a broad firm stalk. The uterus at this point was considerably thickened, but not otherwise diseased.

When the root of a polypus at its junction with the uterus does not drop off soon after the pedicle has been divided by ligature, we find that a secondary tumour is sometimes formed, which differs from the former in the rapidity of its growth, and in its external characters. The vessels of the uterus, in connexion with the diseased part, have their action morbidly increased; the remaining portion of the root becomes elongated, until an irregular oblong-shaped tumour is formed, which assumes the direction, but seldom displays the dense structure of the primary disease. This secondary tumour may have its surface smooth, and polished by the action of the uterus, but it wants the covering of mucous membrane, which always invests a true polypus. This is sufficiently obvious, if we consider that the tumour arises from the broad and open surface of the primary root, the mucous membrane covering which was destroyed by the previous operation.

In the following case, a great variety of morbid changes were discovered after death on the surface, in the substance, and in the cavity of the uterus. It is also curious, as showing the growth of a simple *benign* polypus, from a viscus so completely diseased.

CASE VIII. This poor woman, between 40 and 50 years of age, had a tumour in the abdomen for about 14 years, which had been gradually increasing, and was supposed to be a diseased ovarium. When I first saw her, about the beginning of March last, the day before her death, her abdomen was very prominent, and filled by a large firm tumour. She had been occasionally subject to a copious discharge from the vagina of glairy fluid mixed with blood, and shreds of pellucid membrane like ruptured hydatids, which appeared to diminish the abdominal swelling for a short time. She died of peritonæal inflammation; and although I had not an opportunity of witnessing the dissection, I have since carefully

examined the uterus, which is in the possession of Mr. Stirling. It was enormously enlarged, of a natural shape, but hard and irregular, its outer surface being studded over by many tumours of different sizes, covered by peritonæum, and in shape and consistence not unlike polypi. Its walls were three inches in thickness, and throughout diseased, exhibiting a condensed fibrous structure, irregularly mixed with sarcomatous, cartilaginous, and bony depositions. The inner surface of the uterus was irregular and tuberculated, and contained a polypus about the size of a hen's egg, attached a little below the fundus by a pedicle as thick as the finger. This tumour, instead of hanging with its apex towards the os uteri, lay completely across, and produced a deep indentation in the walls of the uterus in contact with it. This unusual position probably arose from the greater disease about the inferior part of the uterus resisting the descent of the tumour. The uterus measured 10 inches in length, nine inches in breadth, seven inches from the anterior to the posterior aspect, and weighed nine pounds.

As the neck of the uterus, from its function and anatomical structure, is in advanced life liable to be affected with cancer, we are induced to believe that a simple polypus of this part may more readily become malignant and incurable, than when it originates in any other situation.

36, Kent-street, 9th July, 1828.

XI. *On the Utility of Sulphate of Quina in Strumous Ophthalmia; with Cases.* By WILLIAM MACKENZIE, Andersonian Professor of Anatomy and Surgery, and One of the Surgeons to the Glasgow Eye Infirmary.

THIS disease is commonly attended by great restlessness during the night, terminating in profuse perspiration. The skin is, in general, pale and relaxed, the abdomen tumid from muscular weakness, and the excretions from the bowels unnatural. The local symptoms are extremely peculiar, especially the excessive intolerance of light, profuse epiphora when the eyelids are forced asunder, fascicular redness of the conjunctiva, and formation of minute pustules or phlyctenulæ on the cornea, too frequently ending in ulcers and indelible specks.

I need not here insist on the utility of local blood-letting, by leeches, and scarification of the palpebral conjunctiva; of purgatives; and of tonics, in the treatment of this tedious and distressing disease. My object is solely to recommend, and

that in the most earnest manner, the employment of the sulphate of quina in this complaint. After many years' experience in the treatment of strumous ophthalmia, and a trial of numerous and various internal remedies, I have found none so useful as quina. In most instances, its effects have been very remarkable; and, indeed, although I have met with a few cases which appeared to resist its beneficial influence, in most of the little patients to whom I have administered it, it has acted like a charm.

I do not trust to the quina alone; nor do I, in general, begin the use of it till the stomach has been cleared by an emetic, and the bowels put to rights by repeated doses of calomel and rhubarb, or some other such purgative. I continue to leech and scarify, and to use such local applications as the vinum opii, or nitras argenti solution, exactly as I used to do before I became acquainted with the powers of the sulphas quinae over the constitutional disorder which attends strumous ophthalmia, and thereby over the local complaint.

The dose which I employ is generally 1 grain thrice a-day, rubbed up with a little sugar; in very young children, $\frac{1}{2}$ grain; and in adolescents or adults, 2 grains.

Cinchona is not a new remedy in strumous ophthalmia. Dr. Fothergill recommended it many years ago, in very strong terms;* but its powers, in the form of powdered bark, or in any other form in which I have tried it, are insignificant in comparison to those of the sulphate of quina.

I shall add a few cases from the Journals of the Eye Infirmary, illustrative of the effects of this most valuable addition to ophthalmic, as well as to general, medicine.

CASE I. 4th July, 1828. Elizabeth Rodgers, aged 6. Conjunctivitis strumosa of four weeks' standing, consequent to measles, and affecting chiefly the left eye.

℞ Tartr. Antimonii gr. iv. Aquæ ℥vi. Solve. Detur pro emetico, more solito. †—Instill. g^{tt}. solutionis Nitrat. Argenti. ‡—Utatur Collyro Muriatis Hydrargyri. ||

7th. ℞ Sulphatis Quinae gr. vi. Sacch. Albi ʒss. M. et divide in pulveres xii. Capiat i. ter indies.

21st. Eyes rather more tender, but till to-day they were improving. ℞ Subm. Hydr. gr. i. Pulv. Jalap, gr. viii. M. Cap. q. p.—Omitt. Pulv. Quinae hodie.

28th. Much improved.

10th August. Still improves.—Contin. Quina et alia.

1st Sept. All but well.

29th. Dismissed cured.

CASE II. 23d July, 1828. Jane Thomson, aged 9. Ophthalmia

* Medical Observations and Inquiries, vol. i. p. 303. London, 1763. Also, Dr. Fordyce, in same vol. p. 192. Dr. Fothergill used a decoction of the powdered bark, with liquorice root.

† A tablespoonful every three minutes, till free vomiting is induced.

‡ 4 grains to 1 oz. of distilled water.

|| 1 grain to 8 oz. of water.

strumosa of the right eye, of fourteen days' standing. A deep ulcer near the centre of the cornea, surrounded by a broad effusion of lymph. An onyx at the lower edge of the cornea. Much reduced in general health by bleeding, purging, and blistering. Affected with night sweats.

℞ Sulph. Quinæ gr. xii. Sacch. Albi ʒ ss. M. Divide in pulv. xii. Cap. i. ter indies.—Instill. g^{tt}. Sol. Argent. Nitr.—Collyr. Mur. Hydr.

24th. Onyx all but gone.

27th. Ulcer contracted.

29th. Bowel complaint. ℞ Subm. Hydr. gr. iv. Opii, gr. ss. M. Divide in pulv. ii. Cap. i. hora somni.

6th August. Eye continues to improve. Cont. Quina et alia.

16th. Sept. Eye strong. Ulcer has been cicatrized for some time, and the leucoma grows thinner. ℞ Sulph. Quinæ gr. vi. Sacch. Albi ʒ ss. M. Divide in pulv. xii. Cap. i. ter indies.*

CASE III. 25th July, 1828. James Walker, aged 7. Ophthalmia strumosa of the right eye, of five weeks' standing. Conjunctiva much inflamed. A pustule, the top of which is ulcerated, at the lower part of the cornea.

Emeticum Tartr. Antimonii, more solito.—Instill. g^{tt}. Sol. Argent. Nitr.—Collyr. Mur. Hydr.

27th. Vesicatorium pone aurem dextram.

30th. Hirudines vi. ad tempus dextrum.

31st. Repetatur vesicatorium.

2d Aug. Improvement slow.—℞ Sulph. Quinæ gr. vi. Sacch. Albi ʒ ss. M. Divide in pulv. xii. Cap. i. ter indies.

10th. Considerable improvement since last report.

18th. Ulcer cicatrized, and eye strong.

27th. Omitt. Pulveres.

29th Sept. Sight perfect. Leucoma much contracted. Dismissed cured.

CASE IV. 13th August, 1828. John Tielman, aged 1 $\frac{3}{4}$. Conjunctivitis strumosa of the right eye, with an albugo on the cornea, and red vessels running into it. Restless, and sweats through the night. Symptoms consequent to measles, four months ago.

℞ Sulph. Quinæ gr. vi. Sacch. Albi ʒ ss. M. Divide in pulv. xii. Cap. i. ter indies.—Lac cum aqua tepida, ter indies, pro collyro.

17th. Rests much better, and sweats less. Eyes stronger.

27th. Still improves.

31st. Bowel complaint. ℞ Subm. Hydr. gr. i. Sacch. Albi gr. vi. M. Cap. q. p.

7th Sept. Much improved. Contin. Quina.

CASE V. 15th August, 1828. James Tassie, aged 8. Ophthalmia strumosa of the right eye. Cornea rough and nebulous. Has been troubled with this complaint, more or less, for seven years past. There formerly was a considerable albugo on the right cornea, but it had diminished much till within a fortnight ago, when a relapse took place.

Emeticum Tartr. Antim. more solito.—Instill. g^{tt}. Sol. Argent. Nitr.

16th. An onyx at the lower edge of the right cornea, which was not observed yesterday; but he opens the eye better to-day. ℞ Sulph. Quinæ gr. xii. Sacch. Albi ʒ ss. M. Divide in pulv. xii. Cap. i. ter indies.—Collyr. Mur. Hydr.

18th. Onyx gone.—Belladonnæ Extr. ad regionem circumorbitalem.

20th. The intolerance of light having considerably subsided, the cornea can

* In all probability the cornea would have been penetrated, if the depletory system had been persisted in, which this patient was undergoing before she came to the Eye Infirmary.

now be more completely seen. The centre of it appears to be perforated by an ulcer, and the pupil contracted.

22d. Iris everywhere in contact with the cornea. Eye continues easier.

27th. The iris appears to be returning a little into its natural place. Some of the pupil is seen. He sees a little with the eye.

28th. Pupil expanding, and cornea clearing.

1st Sept. Pupil free of the cornea, except at its inner edge, where it still adheres by a single point.

16th. Iris entirely free of the cornea.

25d. Eye continues to improve.*

CASE VI. 18th August, 1828. Janet Yule, aged 5½. Conjunctivitis strumosa of the left eye, with a small albugo on the cornea. Little or no redness, but eye very intolerant of light.

℞ Sulph. Quinæ gr. vi. Sacch. Albi ʒ ss. M. Div. in pulv. xii. Cap. i. ter indies.

19th. Collyr. Mur. Hydr.

26th. Instill. gr^{ss}. Sol. Argent. Nitr.

28th. Intolerance of light much abated.

30th. Bowels loose. Omit. Quina.—R. Pulv. Rhei gr. viii. Cap. q. p.

1st Sept. Continues to improve. Repetant. Pulv. Quinæ.

5d. Bowels again loose. Eye much improved.—Cap. Pulv. Quinæ i. indies.

14th. All but well.

29th. Dismissed cured.

I have found the sulphate of quina highly serviceable in a variety of other cases besides those of the pure phlyctenular ophthalmia; for example, in corneitis, in ophthalmia tarsi, and in catarrhal ophthalmia modified by the strumous constitution.

CASE VII. 7th July, 1828. John M'Kinnon, aged 6. Ophthalmia tarsi, of two years' standing. Copious discharge of purulent matter from the diseased Meibomian follicles and conjunctiva. Left ear discharging matter, and much covered with porrigo.

Instill. gr^{ss}. Sol. Argent. Nitr.—Appl. Ung. Hydr. Præc. Rubr. † ad margines Palpebr. o. n.—Collyr. Mur. Hydr.

9th. R. Sulph. Quinæ gr. xii. Sacch. Albi ʒ ss. M. Div. in pulv. xii. Cap. i. ter indies.

18th. Much improved.

5d Aug. All but well.—R. Sulph. Quinæ gr. vi. Sacch. Albi ʒ ss. M. Div. in pulv. xii. Cap. i. ter indies.

CASE VIII. 9th July, 1828. Janet Burns, aged 34. For twenty weeks has been labouring under an attack of conjunctivitis in both eyes, probably catarrhal in the first instance, modified by a strumous constitution. Has a sensation of sand in the eyes. Eyelids adhere in the morning. Much intolerance of light, and epiphora. Complains a good deal of pain in the temples, alternating with pain in the eyes. Pain of eyes easier towards morning. Palpebral conjunctiva slightly granular.

Instill. gr^{ss}. Sol. Argent. Nitr.—Ung. Præc. Rubr.—Collyr. Mur. Hydr.—R. Sulph. Quinæ gr. xxiv. Sacch. Albi ʒ i. M. Div. in pulv. xii. Cap. i. ter indies.

* This was one of the most remarkable and pleasing recoveries from penetrating ulcer of the cornea, and involved iris, which I have met with. The recovery was mainly attributable to the salutary operation of the quina on the inflammatory affection, and to the mechanical effect produced by the belladonna. I may here remark, that belladonna, applied in cases where the iris protrudes to one side of the cornea, has sometimes appeared rather to favour a farther prolapsus; not so when the edge of the pupil is involved in an ulcer of the cornea.

† 12 grains to 1 oz. of axunge.

- 10th. Scarif. facies interna palpebrarum.
 13th. Improving.—Contin. remedia.
 15th. More epiphora.—Appl. Sulphas Cupri ad faciem anteriorem palpebrarum.—Vesicatoria pone aures.
 16th. Conjunctiva of the eyelids more vascular.
 17th. Instill. g^{tt}. succi expressi radice Holci Avenacei.*—Omitt. Sol. Argent. Nitr.
 21st. Eyes somewhat stronger.
 6th Aug. Still improves.—Contin. remedia.
 30th. Eyes perfectly well. Dismissed cured.
 39, Hutcheson-street, 7th Oct. 1828.

XII. Report of Diseases among the Poor of Glasgow during May, June, and July, 1828. By JOHN PATERSON, Member of the Royal College of Surgeons in London, and One of the Surgeons to the City Poor in Glasgow.

DISEASES.	No. of Cases.	Sent to Infirmary.		DISEASES.	No. of Cases.	Sent to Infirmary.	
			Dead.				Dead.
Abortio	10			Brought forward,	242	3	8
Abscess	23			Diarrhœa	46	1	1
Amaurosis	3			Dysentæria	127	1	2
Amenorrhœa	6			Dyspepsia	35	2	
Anasarca	22	2		Dyspnœa	2		
Ankle, (diseased) & amputation	1			Enteritis	5		1
Anus, prolapsus of	4			Epilepsia	6		
Ascites	11	3		Epistaxis	1		
Asthma	18			Erysipelas	15		
Bronchitis	13			Fever	525	102	9
Bruises	26	1	1	— puerperal	3		
Burns	12			Fractures	8	2	
Cancer	1	1		Gangrene	1		1
Cancrum oris	8			Ganglion	1		
Catarrhus	19			Gastritis	5		1
Cephalalgia	6			Glaucoma	1		
Cholera	14	1		Gonorrhœa	2		
Concussio	2			Heart, disease of	9		2
Constipatio	9			Hæmatemesis	1		
Contraction from burn	1			Hæmoptysis	6		
Contusio	3			Hæmorrhoids	4		
Cynanche maligna	3	1		Hepatitis	26		1
— parotideæ	2			Hernia humoralis	23		
— tonsillaris	10	1		— femoral	1		
— trachialis	1			Hydrocephalus	2		2
Debility	11			Hydrocele	2	1	
Delirium tremens	2			Hysteria	35		
Dentitio	1			Icterus	5		
				Infantile fever	2		
Carry forward,	242	3	8	Carry forward,	1141	112	28

* The expressed juice of the knotted root of the *Holcus Avenaceus* is a remedy from which I have seen much benefit, in chronic catarrhal ophthalmia, and in granular conjunctiva.

DISEASES.	No. of Cases.	Sent to Infirmary.	Dead.	DISEASES.	No. of Cases.	Sent to Infirmary.	Dead.
Brought forward,	1141	112	28	Brought forward,	1396	119	44
Injury of head	2			Purpura hæmorrhagica	1		
Iritis	7	2		Polypus uteri	1		
Jaw-bone, diseased	1			Psora	37		
Knee, diseased	1	1		Rheumatismus	45	1	
Laryngitis	1			Rubeola	40		5
Lepra	5			Scarlatina	3		
Leucorrhœa	16			Scirrhus uteri	1	1	
Lumbago	3			Scrofula	19		
Mania	1			Spine, disease of	4		1
Menorrhagia	11		1	Sprain	1		
Odontalgia	9			Syphilis	13		
Ophthalmia	31			Tabes mesenterica	2		1
Otitis	4			Tinea capitis	15		
Ovarium, diseased	4		1	Tumour	8		1
Paralysis	15	2		Tussis senilis	9		
Peritonitis	1			Uleers	32	2	
Pertussis	32		3	Urticaria	2		
Phthisis	32	1	8	Variola	6		1
Phlegmon	2			Vermes	40		
Pleuritis	34			Vertigo	5		
Pneumonia	43	1	3	Wounds	17	4	
Carry forward,	1396	119	44	Total,	1697	127	53

Total number of cases, 1697
 Sent to the Infirmary, 127

Number treated in their own houses, 1570

Deaths, 53=1 in 29 2-4ths.

Number of cases of fever treated in their own houses, 423.

Deaths from fever, 9, being one in 47.

Remarks. By comparing the reports received from the different district surgeons, *Fever* has prevailed to a greater extent in some districts than in others, as is evident from the subjoined table:—

Proportion of the cases of fever to the total number reported.

South-west district, second division,	1 in 0 $\frac{3}{4}$
South do. do. first do.	1 in 2 $\frac{3}{4}$
South-east do.	1 in 3 $\frac{1}{2}$
North-west do.	1 in 4
North-east do.	1 in 4 $\frac{3}{4}$
South-west do. third division,	none.

This disease has been in general mild, and of short duration, and although decidedly infectious, it has rarely been characterized by typhoid symptoms.

The amount of disease, as seen in the above table, is considerably more than the ordinary average of a summer quarter; but the mortality has not been increased in the same proportion. Though some of the diseases more generally

prevalent in winter and spring, as the inflammatory affections of the chest, were during the above quarter more numerous, particularly towards the end of May and beginning of June, when the weather was moist and variable, yet they were mild in their symptoms, short in their duration, and rarely proved fatal. The cases of *pneumonia* and *pleuritis*, treated in their own houses, amount to 76, the deaths to 3, or 1 in $25\frac{1}{2}$. *Measles* and *chincough* have been also rather more abundant, but without assuming an epidemic form. They were generally accompanied with acute pectoral symptoms, requiring general and local blood-letting, with the other antiphlogistic adjuvants. The number of deaths from measles has, during last quarter, rather exceeded the ordinary fatality of this disease,—the total number of cases is 40; the deaths 5, or 1 in 8. *Chincough* was upon the whole mild, though, as usual, protracted. The cases amounted to 32; the deaths to 3, or 1 in $10\frac{2}{3}$.

Eight deaths are marked from *phthisis*. This fatal and unmanageable disease has been decidedly on the increase among the poor during the last 5 or 6 years. It occurs most frequently in individuals from 14 to 25 years of age; and were I required to point out that class of the population which appears most prone to its attack, I would at once say, the workers in cotton-mills. They are so from various causes. Their occupation is by no means a wholesome one; but although not suddenly or positively deleterious in its immediate effects, it yet ultimately impairs the tone of the system, and produces a relaxed habit of body, which is ill suited to resist the vicissitudes of temperature to which they are exposed. The greater number engage in this employment at an early period of life, when the system is ill able to encounter the long confinement and enervating atmosphere of a public work. We would especially warn this numerous and important class of our manufacturing population, against sudden transition from a heated room to a cold or moist atmosphere, until the body has been protected by an addition of warm clothing. The tubercular form of *phthisis* is by far the most frequent in its occurrence, and in its progress extremely slow. I have often observed it continue without any obvious advancement during the whole of a mild winter, but increase with great rapidity and prove fatal during summer.

Dysentery began to increase about the middle of May, and has certainly been more prevalent than during the former summer, though less so than in autumn last. It has been in many cases very severe, and protracted in its duration; but upon the whole less fatal. The character of this disease did not vary much from the statements given in a former Number

of this Journal, and therefore the symptoms do not require to be specified. I must agree with those gentlemen who believe that the secretions into the upper part of the alimentary canal are greatly diminished, and often altogether suspended. I think it impossible otherwise to account for the total absence of fæculent evacuations, sometimes for ten or twelve days in succession, while nothing but bloody mucus is discharged. I admit that the descent of fæculent matter may, to a certain extent, be prevented by a spasmodic contraction of the bowel, at the upper boundary of the disease; but I think it impossible, if the secretions were all duly performed, that this retention could exist during such a long period without the action of the stomach and bowels becoming inverted, as is observed in hernia, and other mechanical causes of obstruction. Having this view of the disease, besides allaying irritation of the inflamed colon and rectum, I am favourable to a guarded use of mercury. I would at the same time recommend the use of opium as an adjuvant of the highest value; but I cannot agree with those who place their chief reliance on this remedy. It may counteract some of the most urgent symptoms; but if the disease is fairly established, it cannot be expected to arrest the morbid changes going on in the bowels. Dr. Macfarlane informs me, that he has lately used in the advanced or chronic form of dysentery, clysters of sulphas cupri, or nitras argenti, in the proportion of from 1 to 3 grains to the ounce of water, and in several instances with marked advantage. In one case the tenesmus was more decidedly relieved, and suspended by a solution of sulphas cupri, introduced into the rectum, than by all the opiates, glysters, and suppositories, previously employed.

The fatal case of *spinal disease* occurred in the practice of Dr. Macfarlane, and is in some respects interesting. A delicate girl, 11 years of age, of a scrofulous habit, was affected in the beginning of April last, with acute pain in the upper cervical vertebræ, immediately under the occiput, which extended along both sides of the neck to the shoulders. In a few days, the head was considerably depressed, and could not be elevated or rotated, without great pain. On the 26th of May, when she became a district-patient, there was a considerable swelling over the three upper vertebræ of the neck, both posteriorly and laterally, exceedingly painful on pressure, or when the head was attempted to be moved in any direction. She had occasional difficulty of swallowing, numbness in the arms, particularly in the right, impaired digestion, costive bowels, loaded tongue, and a pulse seldom below 100. She was repeatedly bled with leeches, blistered, and had afterwards caustic applied to each side of the affected part of the spine,

while suitable attention was paid to the digestive organs, and mechanical means used to fix the head and neck in a straight position. She could now maintain the head nearly erect, but was unable to move it in any direction, except by supporting the chin with the one hand whilst the other was applied to the occiput. The pain became daily more acute, she slept little, and emaciation rapidly increased. About the 10th of June, she could not remain erect for more than three or four minutes, and she had much difficulty in raising her head from the bed, the slightest motion being attended with intolerable anguish. Early on the morning of the 24th, she was raised up in bed by an assistant, and supported in this position for about ten minutes, when she fell asleep; in a few minutes she awoke with a start, by which her head was suddenly thrown backwards, she then gave a slight scream, appeared for a few minutes convulsed, and immediately expired.—On dissection, about an ounce of pus was found lying deep under the integuments of the back of the neck, over the atlas and vertebra dentata. The ligamentum subflavum attached to these two bones was in one part so destroyed by ulceration, as to permit a small bougie to be introduced, by which a quantity of pus was found on the surface of the theca vertebralis. The lateral articulations of the first two vertebræ did not correspond in their position, the dentata appearing to be pressed forward, while the atlas projected backward. After removing the spinous processes of the third, fourth, and fifth cervical vertebræ, the finger was passed up within the spinal canal, when the processus dentatus was found projecting forwards, and, in fact, sunk into the substance of the spinal marrow. The transverse, lateral, and perpendicular ligaments of the processus dentatus were nearly destroyed by ulceration, and about two-thirds of the atlas and dentata carious.

October 8th, 1828.

ANALECTA.

1. *Eruptive Rheumatic Fever of the West Indies.*

DR. G. W. STEDMAN of Santa Cruz, has published an account of the epidemic, known by the name of Dandy Fever, which prevailed during last winter, throughout the West India Islands. It commenced suddenly in St. Thomas, towards the end of September 1827, in consequence, it was believed by some, of the touching there of an African ship, and as others supposed, of a peculiar state of atmosphere, proceeding from a previous hurricane. It consisted of three distinct stages, and the most usual mode of attack was the following:—

1st. A person in perfect health would suddenly feel a stiffness, soon converted into intense pain in one of his fingers—most frequently the little finger—spreading rapidly with swelling and stiffness of the other fingers, over the whole hand, and up the arm to the shoulder. In a short time, restlessness, languor, nausea, and sometimes vomiting succeeded; followed by shivering, fever, hot skin, violent headach, and acute pain in the eye-balls, back, knees, and ankles. In some the face was swollen, the conjunctiva and eyelids affected as in a severe cold, and in one or two a profuse ptyalism took place. These symptoms continued with more or less severity from twenty-four to thirty-six hours; and as the fever abated the pains of the joints declined, leaving the fingers, ankles and toes last. An interval of about three days of complete apyrexia now took place, during which the patient was languid, irritable, and affected with aphthous mouth, and loss of the sense of taste.

2d. The third or fourth day of this remission was ushered in by fever, and an efflorescence of blotches, or wheals of a roseate colour, beginning at the palms of the hands, and spreading over the whole body; accompanied in the severer cases by swelling of the feet, hands, and face, a sense of cold, formication and itchiness. This secondary fever lasted about twenty-four hours, and the efflorescence began to fade on the second day, and disappeared entirely with desquamation of the cuticle before the third morning.

3d. After the eruptive stage, the patient began to recover his strength and spirits, and even resume his avocations; when, after an interval varying from two to six weeks, he was again seized with excruciating pain in the joints, with this peculiarity, that although the slightest motion occasioned intense agony, no fever was present, and the appetite was good. In from three to six days the pains began to recede, and in a few weeks the patient was able to walk about with his arm in a sling, or with the assistance of a crutch.

Some had the primary fever so slight, that they were made aware of having the disease, only by the appearance of the efflorescence; and others who passed gently through both, were severely attacked by the secondary pains. In some the secondary fever was so smart, as to oblige them to return to bed; in others it was not so perceptible. The eruption was occasionally very severe, producing loss of skin on the scrotum, intolerable itching, and sometimes exciting chronic cutaneous affections into suppuration. The secondary pains generally became less severe towards evening; and it was remarked that those whose occupations forced them to exertion in this stage, or who exerted themselves voluntarily, got soonest well. In a population of about 12,000 persons who occupy the town of St. Thomas, scarcely one individual escaped. The disease was milder in negroes than in whites; and household slaves had it with greater severity than those who wrought in the fields. It proved fatal only in three instances, and these were negroes. Two were infants, who died from irritation consequent on desquamation of the cuticle, and inflammation of the true skin; and the third was a field

labourer, who after passing through the first stage, was seized with pneumonia.

Dr. S. states, that during the period of partial congestion, which preceded the severer symptoms, he had recourse to the warm bath, or pediluvium; brisk purgatives then followed; and when the febrile excitement was fully established, he found bleeding from a large orifice, attended by speedy and marked relief. He afterwards endeavoured to induce sweating by Dover's powder, antimonials, and diluents. The headach was benefited by a blister to the nape of the neck; the pain of the eye-balls and back, by sinapisms to the temples, and small of the back. The itching was relieved by nitric acid wash; and the secondary pains by friction, with stimulating liniments. Dr. S. believes this disease to be contagious, and proposes terming it the Eruptive Articular or Rheumatic Fever.—*Ed. Med. & Surg. Jour. No. 97.*

2. *Extirpation of the Uterus.*

DR. JAMES BLUNDELL has published a case, in which he successfully removed the uterus in a state of malignant ulceration.

The patient, aged 50, broad in her make, and disposed to obesity, had been seized with offensive discharge from the vagina, followed by eruptions of blood in large quantity, so that frequent faintings were produced. This continued during a period of many months; and though, with the exception of slight œdema of the legs, there were no signs of general dropsy; the paleness, coldness, and weakness, and the frequent attacks of deliquium, showed that much vascular inanition had been produced. The bowels were regular, the appetite occasionally good, and the appearance, though cachectic, and perfectly similar to that of other women perishing under malignant ulceration of the uterus, was not such as to indicate a constitution wholly unfit for surgical operation.

Dr. B. found, on examination, that the womb was moveable, and about as large as a goose's egg; that its mouth was broad, open, and of cartilaginous hardness; that it manifested the usual marks of malignant disorganization, in which, also, about one quarter of the contiguous vagina was involved; and that on the surface of this diseased mass, was formed an ulcer, about as broad as a shilling. The bladder and rectum were sound; the inguinal glands not enlarged, whence it was presumed that the lumbar glands were, perhaps, healthy; the ovaries could not be felt to exceed their ordinary bulk, and there was no tangible enlargement of the liver, spleen, kidneys, or omentum. The breathing was easy; the pulse, various in its frequency, ranged between 115 and 120 in the minute; and the patient, though very much debilitated, had sufficient remains of strength to walk to Dr. B.'s house, (the distance of a furlong,) though not without considerable difficulty.

As extirpation appeared the only remedy, the bowels having been cleared, Dr. B. proceeded to remove the diseased parts, on the 19th February, 1828. He placed the woman on the left side, close

upon the edge of the bed, the knees and bosom approximated, and the abdomen directed a little downwards towards the bed.

First Stage. Dr. B. passed the index and second fingers of the left hand to the line of union between the indurated and healthy portions of the vagina; the finger being converted into a cutting instrument, (varying with the exigencies of the operation,) by means of a moveable knife. The blade of the knife, not unlike that of a dissecting scalpel, was mounted upon a long slender shank, which, including its large handle, was about eleven inches in length; and with this stem the blade was united, so that its flat, or plane, formed, with the stem, an angle of 15 or 20 degrees. The first and second fingers of the left hand, then, being in the back of the vagina, contiguous to the diseased mass, by taking the stem-knife in his right hand, he could, at pleasure, put the flat of the blade upon the front of these fingers, and urge the point of the instrument a little beyond the tip. The apex of the forefinger being, in this manner, converted into a cutting point, by little and little he gradually worked his way through the back of the vagina toward the front of the rectum, so as to enter the recto-vaginal portion of the peritoneal cavity; frequently withdrawing the stem-scalpel, so as to place the point within the tip of the finger; and then, making examination with great nicety, in order to ascertain whether the vagina was completely perforated; care being necessary, in this part of the operation, to avoid wounding the front of the intestine.

Second Stage. A small aperture having been formed in this manner in the back of the vagina, through this opening, the first joint of the forefinger was passed, so as to enlarge it a little by dilatation and slight laceration. A cutting edge being now given to the finger, by placing the plane of the blade in such a manner that its cutting edge lay slightly advanced beyond the side of the finger, Dr. B. carried the finger with its cutting edge from the opening in the vagina already made, to the root of the left broad ligament, so as to make one large aperture. He then took a second stem-scalpel, similar to the first, with this difference, that the cutting-edge lay on the other side of the blade, and laying this instrument on the forefinger, as before, in such a manner, however, that the cutting-edge was turned to the right of the pelvis, he carried the finger, thus armed, from the middle of the vagina, where the former incision commenced, to the root of the right broad ligament. The intestines could now be felt hanging about the tips of the fingers; but the blade of the scalpel being, as it were, imbedded in the finger, the risk of a wound, whether by point or edge, was completely prevented.

Third Stage. Dr. B. urged the whole of the left hand into the vagina; passed the first and second fingers through the transverse opening along the back of the uterus, this viscus lying, as usual, near the brim of the pelvis, with its mouth backward, its fundus forward, and a little elevated just above the symphysis pubis; under protection of the fingers now lying between the womb and the intestine, he passed into the abdominal cavity, a double hook,

mounted on a stem eleven inches long. Keeping the points of the hook in front of the fingers near their tips, he pushed the points of the hook into the back of the womb near its fundus, and then drawing the womb downward and backward, towards the point of the os coccygis, as he carried the fingers upward and forward, he succeeded ultimately in placing the tips over the fundus, in the manner of a blunt hook ; after which, by a movement of retroversion, the womb was very speedily brought downwards and backwards into the palm of the left hand, then lodging in the vagina, where the diseased mass might now be seen distinctly enough, lying just within the genital fissure.

Fourth Stage. The diseased structure still remained in connexion with the sides of the pelvis, by means of the Fallopian tubes and broad ligaments, and with the bladder, by means of the peritonæum, the front of the vagina, and interposed cellular web. These were easily divided. The broad ligaments were cut through, close upon the sides of the uterus ; and, in dividing the vagina, great care was taken to keep clear of the neck of the bladder, and the ureters. Some bits of indurated vagina, altogether not larger than a bean, were left in the pelvis, to be removed at some future period, should symptoms require.

The intestines did not protrude in this operation. They were felt only when the fingers were introduced through the opening in the vagina behind. When the last gush of blood was observed, the pulse became imperceptible at the wrist, returning, however, in the course of 10 or 15 minutes. A few ounces of spirits were administered to the patient as the operation proceeded. The general range of the pulse was between 120 and 130, a frequency common in delivery by instruments. Throughout the process, the forefinger of the left hand was the principal instrument ; the scalpels and hook were employed merely as the means of arming the finger for its various operations. Of course, some pain was felt when the first incisions were making, and when, as in ordinary obstetric operations, the hand was urged into the vagina ; but the principal distress was occasioned by drawing down the uterus when the retroversion was accomplished, and the ligaments were put on the stretch. The pains and complaints scarcely exceeded those observed in instrumental deliveries. The patient required no restraint. The insertion of the hook into the back of the uterus, did not occasion much suffering. The operation, from first to last, occupied about an hour, but much of this time was spent in reposing, and in considering what might best be done. With better instruments and greater activity, Dr. B. thinks the whole might most probably be completed in five minutes.

About an ounce of blood was lost, when the back of the vagina was divided ; three or four more ounces following when the vagina was cut in front. Ligatures, tenacula, and forceps were in readiness, but were not required.

Between the date of the operation and the publication of the case by Dr. B., five months had elapsed. The recovery was easy

enough. The patient was fat and well, and designed to return to her husband. The interception of the access to the ovaries was a complete security against extra-uterine impregnation. The head of the vagina was closed by the bladder which lay upon it.—*London Med. Gazette*, No. 36.

3. *Ligatures and Bleeding in Cases of Poisoning.*

In a memoir, read lately by Dr. Vernière to the French Academy of Sciences, on certain methods of treating all cases of poisoning, the author commenced with mentioning the experiments in which Magendie succeeded in completely suspending absorption in a dog, by producing an artificial plethora, by means of the injection of tepid water into the veins. Proceeding on this important fact, he made the following experiment. After putting three grains of alcoholic extract of *nux vomica*, upon a wound made in the foot of a young dog, he applied a ligature above the humero-cubital articulation of the wounded limb. He then slowly injected by the jugular vein as much water as the animal could bear, without suffering much. After this, he opened the vein of the poisoned limb, below the ligature, and taking away a few ounces of blood, injected them into the jugular vein of another dog. This dog died in convulsions at the very moment of injection. The wound of the first dog, however, having been carefully cleaned, a little blood was allowed to flow, and the animal was put at liberty. It exhibited no symptoms of poisoning, and eight days after was perfectly well, when it was sacrificed for other experiments.

The result of this experiment is easily accounted for. It being known that plethora stops absorption; the blood which flowed from the vein that was opened could alone be impregnated with poison, for that vein and its afferents were the only vessels that did not participate in the general plethora. This experiment appeared decisive to M. Vernière. But the means of applying the principle which it affords to practice presents a great inconvenience—the necessity of infusing water into the veins. This infusion, the author thinks, may be avoided, and that it is sufficient to induce a local plethora in the poisoned limb. Now, nothing is more easy than this, as it may be done by a moderately tight ligature. This ligature applied, it would be sufficient to open one of the veins of the engorged part, to determine the flow of the poisoned blood. The author adduced two experiments in support of this method. In the first, three grains of extract of *nux vomica* were spread upon a wound made in the cheek of a small-sized dog. After an application of six minutes, during which the experimenter kept the two jugular veins compressed with his thumbs, that of the poisoned side was largely opened with a lancet, the blood flowed abundantly, and the animal, when restored to its feet, experienced only a little weakness.

In the other experiment, the author inserted under the skin of the anterior surface of the fore-leg of a young dog, three grains of the same extract. A tight ligature was, at the same time, applied

to the limb. Five minutes after the application, the poison was removed by repeated washings; the ligature was removed, and the animal, being let loose, walked peaceably about. It was, however, soon seized with very violent convulsions. A large quantity of blood was immediately taken from the jugular vein, and the convulsions ceased. The animal, on being set at liberty, walked as before; only a few rattling inspirations were heard from time to time, which presently ceased. The author thought that, in this experiment, the ligature having been too tight, the artery had been compressed along with the vein, so that plethora could not have been produced.

From this experiment M. Vernière concludes, *1st*, The inutility of too tight a ligature; *2dly*, That even after the poison has penetrated far into the torrent of the circulation, the evil is not beyond the resources of art, and that it is still possible, by means of large general bleedings, to expel the poison from the system. It may, in fact, be easily conceived, and experiment proves it, that if bleeding is practised at an early period, when the poison is still contained in the large veins, the lungs, and the heart, it will pass, by preference, through the path where it finds less resistance; and consequently the portion destined for the other organs must be diminished in the proportion of the blood that passes through the veins opened.

Hitherto the treatment of all cases of poisoning has been almost exclusively confined to removing the poison from the surface where it was deposited. No person ever dreamed of pursuing it into the veins, and still less of arresting it in the depths of the circulation. The experiments mentioned reduce the treatment of all cases of poisoning, hydrophobia included, to a few precepts, so simple and so easily executed, that the most ordinary practitioner cannot fail to apprehend it.—*Ed. New Philosophical Journ. No. 10.*

4. *Concentration of Alcohol by Animal Membrane.*

SOEMMERING has published two memoirs on the evaporation of the water in diluted alcohol through a bladder, and the consequent concentration of the spirit.

To strengthen alcohol or render it anhydrous, a bladder capable of holding 16 ounces is to be nearly filled with alcohol of specific gravity 0.85; it is then to be well closed, and suspended over a sand bath or before a heated stove, at an inch or more of distance; in the course of a few days the alcohol will be diminished one-fourth of its bulk, and have a specific gravity of 0.8. The bladder of an ox or a calf is to be used, prepared by being steeped some time in water, washed, blown out, freed from fat and adhering vessels, the two ureters effectually tied, and then turned inside out, that both sides may be cleansed. Being then blown up and dried, the surfaces are covered with a solution of isinglass; one layer is put upon the internal surface, and two upon the exterior. The texture thus becomes closer, and the alcoholic concentration proceeds better.

The bladder should not be filled, but a small space left. It does not become moist to the touch, and allows no odour of alcohol. If the alcohol have a greater specific gravity than 0.952, the bladder softens and feels moist. Bladders prepared as above, may be used a hundred times or more: they gradually acquire a yellow brown colour and become stiff, but they are improved by a slight change. The air-vessel of the salmon will not produce these effects: alcohol of specific gravity 0.856, being put into one for 32 hours, lost a third of its volume, and was very much weakened. The air-bladder did not become moist, but the odour of alcohol was perceived near it. Weak alcohol in bladders lost its water more rapidly than stronger spirit. In an experiment between water and alcohol, two equal bladders were chosen, and eight ounces of water put into one, whilst eight ounces of alcohol were put into the other. Both were equally exposed to a moderate heat; in the course of four days all the water had disappeared, while the alcohol had lost only one ounce of its weight.

If artificial heat is properly employed, absolute alcohol may be obtained in from 6 to 12 hours. Even solar heat will produce absolute alcohol.

Wine put into the prepared bladders acquired no bad odour; it took a deeper colour, had more aroma, a milder taste, and generally became stronger. Oil of turpentine, put into a jar and covered by a bladder, lost nothing in four years. Concentrated vinegar lost half its volume in four months; the other half was thick, and had no acid taste. Orange flower water, under the same circumstances, lost a third of its bulk in several months, but had acquired a stronger odour, and had evidently lost none of its volatile principle.—*Quarterly Journ. of Science, No. 7.*

5. *Strangury from Cantharides.*

DR. JOHN DAVY recommends as a means of almost immediate relief in cases of strangury from cantharides, the introduction of the catheter. It is not used with the view of drawing off urine, but expressly for the purpose of relieving the symptom in question. It should be employed with delicacy and caution, just slipped into the neck of the bladder, and kept in only a few seconds. The rationale of the effect he does not attempt to explain.—*Ed. Med. & Surg. Jour. No. 97.*

Additional Note to Dr. Buchanan's Paper on Dislocation of the Femur into the Ischiatic Notch. [With an Engraving.]

6, South Hanover-street, September 27th, 1828.

DEAR SIR,—I hope the press is not too far advanced, to admit of the insertion of the following short account of a case, which I had an opportunity of seeing this afternoon, through the kindness of my friend, Dr. Auchincloss, one of the surgeons to the Infirmary. I should wish, if possible, to see this case placed by the side of the

two I have already given, as illustrative of the utility of the mode of examination I then recommended. I also subjoin a figure, illustrating the position in which the diagnosis of this dislocation is most strikingly manifested.

James Murdoch, a stout athletic man, was brought into the hospital soon after the hour of visit. A mass of clay had fallen upon him, not long before, from a height of about six feet. He was knocked down upon his left side, the thigh of which was, according to his description, in a state of flexion at the moment of the accident; on being extricated, he found himself unable to use the left limb in walking or standing.

When I first saw him he was a-bed, lying upon his back. I immediately bent the two thighs to a right angle with the abdomen. (See figure.) The left thigh was then about two inches shorter than the right, and this difference of length gradually diminished, on bringing back the limbs to the horizontal position. From this examination alone, I felt quite satisfied that the left femur was dislocated into the ischiatic notch, as I know no other affection of the hip-joint that exhibits such characters. The opinion I was thus led to, form, was confirmed by other symptoms, which it is unnecessary here to enumerate. I need only mention, that the flexion of the thighs was performed without any difficulty, and that Dr. Auchincloss had adopted the same mode of examination, and deduced from it the same opinion, before I saw the patient.

Dr. Auchincloss immediately proceeded to reduce the dislocation. An attempt was first made, in the way recommended by Sir A. Cooper; with this difference, that the extending force was applied, not above the knee, but at the ankle. On this attempt failing, the patient was placed upon a bench, in a sitting posture, and bound down, nearly in the same way as in the case already narrated. The extending force was then applied, as before, while the upper part of the thigh was drawn horizontally outward, and the leg rotated in the same direction. In the course of about a minute from the commencement of the extension, the reduction was completed.

The mode in which this and the foregoing case were reduced, appears to me to possess some decided advantages over the plan more usually adopted, as might indeed be inferred from the great ease with which in both cases the reduction was effected. On this subject I should wish to offer a few observations, had I not already trespassed too far upon your limits. Perhaps, however, you may be able in a future Number to spare room for an essay I had the honour of reading before the Medical Society of this city, in which this and some other important topics connected with the dislocation of the femur are particularly considered.—Yours very truly,

A. BUCHANAN.

W. M'KENZIE, Esq.

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